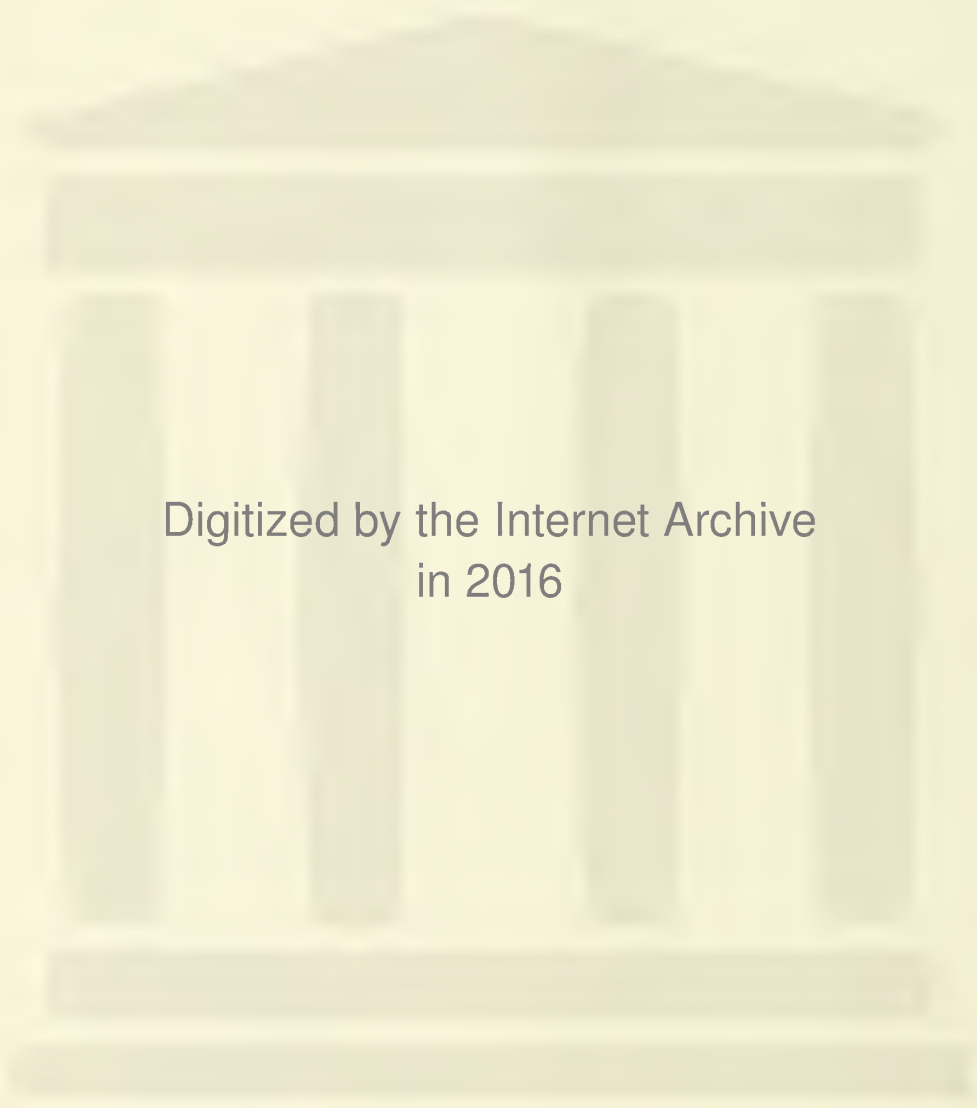


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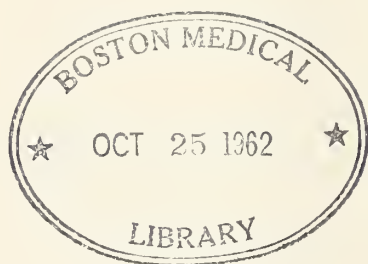
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Medical-Legal Issue

Out of a welter of material your Defense Board has selected pertinent articles which we are certain are of importance to all members of our profession. The JOURNAL OF THE KANSAS MEDICAL SOCIETY has generously offered, through its Editorial Board, the January issue to acquaint you with all available material. It is for your information and may or may not be used as you wish.

The Board would like to emphasize this is not a hopeless situation. It is rather one in which each doctor can individually provide his own solution without requiring assistance to any considerable degree.

Your Defense Board has tried in this issue of the JOURNAL to give you an accurate picture of the problems we each face relative to professional liability. May we now also recommend to us all a defense, so utterly simple that it appears too easy for success. Nevertheless, try this. It works.

1. Avoid careless conversation on subjects with which you are not familiar. The expression of an opinion, when you do not know the facts, has caused more trouble in the practice of Medicine as well as in other fields, than any other factor.

2. Keep complete and accurate written records of your work. One written line of record is worth more than volumes of memory.

3. Be sure you have adequate professional liability insurance in a company you can trust.

4. If you have any doubt concerning a professional service ask for consultation. To do so will raise the confidence of your patient and can later provide you with a most welcome witness.

Perhaps this list could be expanded but with this start other ideas should follow without much effort.

The Defense Board has received much help from Mr. Kirke W. Dale, our attorney, and from many others, in the selection and preparation of this material. We hope you will read the following pages. We believe it will be of interest and it might be helpful to you.

Respectfully submitted,

L. S. Nelson, Sr., M.D., Salina
Chairman

J. A. McClure, M.D., Topeka

C. M. White, M.D., Wichita

Court Decision

Kansas Receives a Ruling on Informed Consent

KIRKE W. DALE, *Arkansas City*

THE LAW, LIKE MEDICINE, is not quiescent.

New doctrines are constantly being applied to establish legal precedents.

Kansas has recently, in a case of first impression, established judicial precedents of the highest importance to the medical profession of this state.

The particular case involved cobalt irradiation given by the physician at a hospital following a radical mastectomy with a subsequent complete or partial hysterectomy.

The point of the patient's complaint was malpractice or the failure of the physician to properly perform the duties which devolved upon him in that the physician failed to warn his patient that the prescribed course of treatment which he undertook to administer involved great risk of bodily injury or death.

The physician denied the asserted negligence and, in addition, alleged that the patient assumed the risk and hazard of the treatment. Thus, said the Court, the physician was fully aware that the informed consent of the patient to the hazards of the treatment was an issue in the trial of the case.

The Supreme Court held that, where no immediate emergency exists, a physician violates his duty to his patient and subjects himself to liability for malpractice, under the facts and circumstances of the case under consideration, if he makes no disclosure of significant facts within his knowledge which are necessary to form the basis of an intelligent consent by the patient to the proposed treatment.

Courts have frequently held that the relation between physician and patient is a relation of trust and therefore the physician has an obligation to make a full and frank disclosure to the patient of all pertinent facts related to his illness.

The conclusion drawn by a majority of the Kansas court, with Chief Justice Parker and Justice Price dissenting, is that where the physician or surgeon has affirmatively misrepresented the nature of the operation or procedure or has failed to point out the possible consequences of the course of treatment, he may be subjected to a claim of unauthorized treatment. This does not mean that a physician is under an obligation to describe in detail all of the possible consequences of the treatment.

The Court recognizes that to make a complete disclosure of all facts, diagnoses and alternatives or

possibilities which might occur to the physician could so alarm the patient that it would, in fact, constitute bad medical practice. It then concludes there is *probably* a privilege, on therapeutic grounds, to withhold the specific diagnosis where the disclosure of cancer or some other dread disease would seriously jeopardize the recovery of an unstable patient, but in ordinary cases there would appear to be no such warrant for suppressing facts and the physician should make a substantial disclosure to the patient prior to the treatment or risk liability in tort.

The mean between the two extremes of absolute silence on the part of the physician relative to the treatment of a patient, and exhaustive discussion by the physician explaining in detail all possible risks and dangers, is that a physician violates his duty to his patient and subjects himself to liability if he withholds any facts which are necessary to form the basis of an intelligent consent by the patient to the proposed treatment. Likewise the physician may not minimize the known dangers of a procedure or operation in order to induce his patient's consent.

At the same time, the physician must place the welfare of his patient above all else, and this fact places him in a position in which he sometimes must choose between two alternative courses of action. One is to explain to the patient every risk attendant upon any surgical procedure or operation, no matter how remote; this may well result in alarming a patient who is already unduly apprehensive and who may as a result refuse to undertake surgery in which there is in fact minimal risk; it may also result in actually increasing the risks by reason of the physiological results of the apprehension itself. The other is to recognize that each patient presents a separate problem, that the patient's mental and emotional condition is important and in cases may be crucial, and that in discussing the element of risk a certain amount of discretion must be employed consistent with the full disclosure of facts necessary to an informed consent.

The proper rule, in effect, compels disclosure by the physician in order to assure that an informed consent of the patient is obtained. The duty of the physician to disclose, however, is limited to those disclosures which a reasonable medical practitioner would make under the same or similar circumstances. How the physician may best discharge his obligation to the patient in this difficult situation involves pri-

Mr. Dale is the attorney for Kansas Medical Society.

marily a question of medical judgment. So long as the disclosure is sufficient to assure an informed consent, the physician's choice of plausible courses should not be called into question if it appears, all circumstances considered, that the physician was motivated only by the patient's best therapeutic interests and he proceeded as competent medical men would have done in a similar situation.

The primary basis of liability in a malpractice action is the deviation from the standard of conduct of a reasonable and prudent medical doctor of the same school of practice as the defendant under similar circumstances.

The patient is entitled to a reasonable disclosure by the physician so that the patient can intelligently decide whether to take and undergo the proposed treatment or surgery and assume the risk inherent therein, or, in the alternative, to decline this form of precautionary treatment or other proposed procedures.

Negligence is an essential element of malpractice, and a causal relation must be established by the patient between the negligent act of the physician and the injury of the patient.

A physician is obligated to make such a disclosure to his patient as is reasonable, and such as would be made by members of his profession and of his school of medicine in the community where he practices or similar communities, having due regard for the advance in medical or surgical science at the time.

Whether or not a physician has advised his patient of inherent risks and hazards in a proposed form of treatment is a question of fact which lay witnesses are competent to testify.

Only when the facts concerning actual disclosure by physicians to patients regarding proposed form of treatment are ascertained or established is expert testimony of medical witnesses required to establish whether such disclosures are in accordance with those which a reasonable medical practitioner, in the community where he practices or similar communities, would make under the same or similar circumstances.

Even though the physician fails in his legal duty to make the necessary disclosure to the patient of dangers and hazards inherent in a proposed form of treatment, the burden is still upon the patient to prove that the failure to make a reasonable disclosure was the proximate cause of the patient's injury.

Negligence is still an essential element of malpractice.

No disclosure to the patient of the inherent risks and hazards is extremely dangerous but what is or is not a reasonable disclosure is a question largely of medical judgment but this must accord with the disclosures made by practitioners of his school of medicine in the community where he practices or in similar communities, having due regard for the advances in medical or surgical science at that particular time.

The state of Kansas has been the principal beneficiary in the allocation of March of Dimes funds raised in the state over the past 23 years, it was disclosed today in a financial summary prepared by The National Foundation.

More than 71 cents of every dollar from Kansas' March of Dimes has been put to use in aiding the state's disease victims and in research projects conducted in the state. Of the remaining 29 per cent accruing to the national headquarters, a considerable amount has come back to Kansas in shipments of polio vaccine and gamma globulin and in other nationwide services conducted by The National Foundation.

The summary covers the period since the first March of Dimes was held in January, 1938, and compares the net total of funds raised in the state with amounts made available to Kansas through Sept. 30, 1960.

In this period, Kansas' 106 chapters of the March of Dimes organization raised a net total of \$6,837,163.12 at an average fund raising cost of less than 5½ per cent. Of this amount, \$2,970,009.71 has been available to the county chapters in carrying out their extensive patient aid programs.

In addition, 20 grants totaling \$1,873,729.85 have been made in support of research projects at the University of Kansas.

Over and above the 71 per cent used by county chapters and in research at the university, The National Foundation has financed within the state projects such as the historic field trials which proved the effectiveness of the Salk vaccine, epidemiological studies and scholarship or fellowship grants to Kansas residents. National headquarters' expenditures for the vaccine trials in Kansas amounted to \$63,816.74. In addition, the national office has sent into Kansas \$64,216.17 worth of Salk vaccine and 254,134 cc's of gamma globulin in support of its polio prevention programs.

Two years ago, the National Foundation for Infantile Paralysis changed its name to The National Foundation in expanding its areas of interest beyond polio to include birth defects and arthritis, using the scientific knowledge and experience gained in the fight against polio.

The New March of Dimes takes place throughout the month of January.

Physician, Patient, and Consent

A Discussion and Some Cases Involving Consent

WILLIAM A. KELLY, *Lawrence*

MALPRACTICE ACTIONS AGAINST physicians have been described by a leading popular periodical as "Medicine's Legal Nightmare." A survey which appeared in the *Journal of the American Medical Association* disclosed that from 1794 to 1955 the reported malpractice cases against physicians totaled 1,936. The writer of the article also observed that these cases represented only a small fraction of the cases filed in lower courts and estimated that only about one in a hundred of such cases ever reach the appellate level. Six times as many patients filed actions against their physicians in 1935 as in 1921. A study made in 1937 disclosed that about 4,000 such actions were filed. A cursory examination of a legal periodical index will reveal the large amount of attention now devoted to the problems of malpractice by the legal profession.

Unauthorized Operations

Usually medical malpractice is thought of in terms of negligent conduct on the part of the physician in the course of the physician-patient relationship. Many of the actions, however, are not predicated on the law of negligence at all, although this type of malpractice undoubtedly is the most frequently litigated. One substantial group of cases deals with the unauthorized operation, which is usually characterized as an assault and battery.

In the case at hand, the wrong complained of is not merely negligence. It is trespass. Every human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent commits an assault, for which he is liable in damages.

Kincaid on Torts, § 375, states the general rule on this subject as follows: "The patient must be the final arbiter as to whether he will take his chances with the operation or take his chances of living with-

out it. Such is the natural right of the individual, which the law recognizes as a legal one. Consent, therefore, of an individual, must be either expressly or impliedly given before a surgeon may have the right to operate." . . . If a person should be injured to the extent of rendering him unconscious, and his injuries were of such a nature as to require prompt surgical attention, a physician called to attend him would be justified in applying such medical or surgical treatment as might reasonably be necessary for the preservation of his life or limb, and consent on the part of the injured person would be implied.

And again, if, in the course of an operation to which the patient consented, the physician should discover conditions not anticipated before the operation was commenced, and which, if not removed, would endanger the life or health of the patient, he would, though no express consent was obtained or given, be justified in extending the operation to remove and overcome them.

It is a well established rule that surgical operation may not be performed on a person until the patient, if sui juris, consents thereto; or in the case of an incompetent no operation may be performed by a surgeon upon such person until the guardian of that incompetent consents to the operation; and, if an infant, no operation may be performed until consent is first obtained of the natural guardian or of one standing in loco parentis to the infant.

With this brief and general orientation supplied by the above quotations, it is the purpose of this study to consider these seemingly simple and clear statements of law as they have been applied in a variety of fact situations.

Generally, the battery committed by the physician is not one motivated by any personal hostility or desire to injure the patient. On the contrary, his motive is a merciful one with the objective of benefiting the person whose bodily integrity he has violated. Sometimes, however, the acts of the physician could be characterized as an assault and battery in a more conventional sense.

In *Keen v. Coleman* the defendant physician, apparently incensed at the refusal of plaintiff to follow his instructions concerning medication, told her to get on an operating table so that he might treat an infected incision which had resulted from an ap-

Mr. Kelly is Associate Professor of Law, The University of Kansas School of Law in Lawrence. This article was previously published in the *Kansas Law Review* in Vol. 8, March, 1960, No. 3. The JOURNAL is grateful to Mr. Kelly and the School of Law for permission to republish the article. The article has also been reprinted in *Insurance Law Journal*, No. 447, April, 1960, and has appeared in condensed form in the *Personal Injury Commentator*, Vol. 111, No. 5, September, 1960.

pendectomy. Despite her violent protests and her statement that she was pregnant, defendant, under pretext of treating the incision through her vagina and uterus, inserted a surgical instrument into her womb and gave it "a sudden and violent whirling motion." The result was dismemberment of the unborn child and infliction of painful injuries on the woman. The defendant then abandoned the woman, leaving her to make her way home as best she could. The lower court held that the petition was subject to demurrer. On appeal, the supreme court reversed and held that the petition stated a cause of action for an unauthorized operation in the absence of an emergency.

In *Wellman v. Drake* the plaintiff screamed out in pain while the defendant was filling her tooth. The defendant ceased work, forcibly removed her from the dental chair, shook her, and tore a towel from around her neck. The court held that the cause of action which was alleged was for malpractice, not assault and battery. The assault was regarded as a mere aggravation of the malpractice which was the failure of the defendant to continue the treatment after he had exposed a nerve in the tooth. The conduct displayed here, and in the preceding case, however, would seem to involve acts different in nature than an invasion which is an incident of bona fide medical treatment.

Battery Occurs During Treatment

Ordinarily the battery occurs as a part of the medical treatment being administered. It would appear obvious that a physician cannot force the benefit of his skill upon a protesting patient. The patient may prohibit any treatment at all, or he may place limitations on the extent or manner of treatment. He is the master of his own body, and absent some overriding social policy, even a well-intentioned invasion is a battery.

In *Schloendorf v. Society of N. Y. Hosp.* the plaintiff entered the hospital for the purpose of being examined while under anesthetic. She testified she had notified the physician that there must be no operation. While she was under ether a tumor was removed from her abdomen. A directed verdict for the defendant was sustained by the court of appeals because no master-servant relationship existed between the hospital and the doctors and nurses who performed the operation. It was also necessary for the court to determine the nature of the wrong committed, because another defense was that the patient had waived any claim for negligence by entering a charitable institution. The defense was found not to be good because the operation was a trespass, and no waiver could be found in the commission of a forbidden act. Judge Cardozo stated that it was a trespass because every

adult of sound mind has a right to determine what shall be done with his own body, and a surgeon commits a battery by performing an operation without the patient's consent. The opinion recognized that where an emergency exists and it is necessary to operate on an unconscious patient before consent can be obtained, the surgeon can proceed without the patient's consent. The court properly found that no emergency existed. The patient had considered and had rejected the possibility of an operation for the correction of any condition which might be discovered during the examination. The discovery of a condition which endangered her life or health could not imply a consent in view of the earlier prohibition, even though good medical practice might have called for an immediate operation.

In *Marshall v. Harter* plaintiff went to defendants for an examination of her throat with a laryngoscope. She testified she told them she wanted only a visual examination without any cutting. Evidence that her family physician had referred her to the defendants for a visual examination only and had so notified defendants' receptionist by telephone was excluded by the trial court. As a matter of routine procedure, defendants obtained a clipping of a polyp which they found. Defendants testified that prior to the operation they had told plaintiff the examination would not be complete without a clipping, if any abnormality should be found. Judgment for the defendants was reversed on the ground of error in the exclusion of the testimony of the family physician. The inference is that if the patient had made such a specific prohibition and had not withdrawn it, expressly or apparently, she would have a cause of action for an assault and battery. If the defendants felt that the restriction imposed by the plaintiff too strictly limited their discretion in the exercise of their professional skills and services, they could have declined to make the examination. In *Donald v. Suann* the trial court refused to charge that if the patient had presented herself to the physician for diagnosis, treatment, and care, he was authorized to use ordinary and usual means of diagnosis. It appeared that plaintiff had objected to a spinal puncture. This ruling was affirmed on appeal.

In several cases the patient has prohibited the administration of a certain type of anesthetic. The court in *Keister v. O'Neil* held that the administration of a spinal anesthetic in violation of a express prohibition would be a technical assault and battery. Since no actual damages were shown, the appellate court refused to set aside a judgment for the defendant simply to permit the recovery of nominal damages. An anesthetist was found liable in *Woodson v. Huey* because he administered a spinal anesthetic in violation of express instructions which were communicated to the surgeon who performed the operation and which

had been noted by him on the chart. Actual damages were shown and a verdict for \$6,000 was permitted to stand. In *Chambers v. Nottebaum* the plaintiff, an adult, instructed the defendant not to use a spinal anesthetic. Subsequently his mother executed a consent which authorized the use of such anesthetic as might be necessary. Sodium pentothal was injected at the beginning of the operation, but there was an adverse reaction and a spinal block was administered. The jury found that no emergency existed which would permit a violation of the express prohibition, and a judgment for plaintiff was affirmed on appeal. Earlier it has been suggested that a prohibition bars implied consent. In this case if the operation had actually been in progress when the necessity for use of another anesthetic arose and the only other one practical was a spinal block, consent to its use should be implied. The prohibition was not against the use of anesthetics generally, and in making the prohibition the patient obviously did not contemplate completion of the surgical procedure without anesthetic. More, the operation had not commenced, and a short delay would have permitted the patient to decide for himself whether he wished to change his mind in view of the adverse reaction. Similarly, if Mary Schloendorff's heart had stopped beating while she was being examined under ether, this would have been such an emergency as to imply a consent to open her chest cavity and massage her heart. Her prohibition, construed reasonably, forbade any operation to correct conditions discovered during the examination. Such a prohibition should not bar a consent implied by an emergency not contemplated by the parties at the time the prohibition is made.

Kansas Case

In a Kansas case the patient protested a spinal injection, but the court treated the action as one for negligence which was the theory stated in plaintiff's petition.

In *Rolater v. Strain* plaintiff consented to an operation on her foot in order to drain an infection. She expressly instructed the defendant not to remove any bone from her foot. During the operation defendant discovered that the sesamoid bone was in an unusual position which blocked access to the joint which was to be drained. There was evidence that the bone served no useful purpose and serious consequence would result from a completion of the operation without removing the bone. The appellate court affirmed a judgment in the amount of \$1,000 on the ground that the removal constituted a trespass to which a defense of skill and care in the operation was not available. A battery was found in *Perry v. Hodgson* where the father of a minor consented to an operation intended to relieve lameness caused by tuberculosis of

the spine. The understanding was that the surgeon would go only under the skin and clip leaders and muscles. The father specifically told the surgeon that he did not want him to go near the hip joint or a tract through which a controlled infection drained. A substantial injury resulted when the surgeon cut into the hip joint contrary to these instructions. The surgeon defended on the ground that he had exercised proper skill and care in the operation. On appeal the court stated the issue was not whether the operation was properly performed, but whether the defendant had exceeded his authority in performing the further operation.

In *Francis v. Brooks* a verdict for the plaintiff was affirmed where she had alleged the extraction of a tooth against her objections and there was conflicting evidence as to whether she had in fact consented. The extraction of the tooth left so little bone that her jaw was easily broken. Originally the petition had alleged only malpractice, but an amendment alleging the removal without consent was made after the statute of limitations for an assault and battery had run. The amendment was held to be a mere incident of the malpractice case and not a separate action. In *Moscicki v. Shor* it was held that an unauthorized removal of twenty-three teeth from an unconscious patient, who had insisted that only half of them be removed at a time, was an assault and battery.

A less precise prohibition was before the court in *Dicenzo v. Berg* where plaintiff, prior to an operation to alleviate a condition resulting from a fractured vertebra, instructed the physician, "Don't go too much up in the neck." The court held that there was not sufficient evidence to sustain a finding that plaintiff had not consented to such an operation as was considered necessary by the surgeon to relieve his affliction. Plaintiff knew that his neck would be involved, and defendant was justified in relying on an apparent consent to exercise his best judgment.

Patient Can Withdraw Consent

Although the patient has consented to a particular procedure, he may, of course, withdraw the consent and prohibit specified procedure prior to the operation. In *Corn v. French* plaintiff executed a written consent in which she authorized a mastectomy. After the removal of her breast, she contended that she had not known the meaning of the word "mastectomy," that she had told the surgeon not to remove her breast, and that he had assured her no such operation would be performed. While plaintiff was held estopped by the consent to deny she had authorized the operation, a contention that she had subsequently withdrawn the consent was held to be a jury question.

If a battery is committed by the surgeon when he disregards a prohibition directed against some partic-

ular aspect of the operation or against any operation at all, it would seem clear that one who protests against any sort of treatment by the physician would be the victim of a battery if the protest is ignored. The cases, however, had not so held. *Ollet v. Pittsburg, C., C. & St. L. Ry.* was an action for false imprisonment. The foot of the plaintiff, a seventeen-year-old boy, was crushed by one of defendant's trains. Over his protest that he wished to be treated by his family physician, he was taken by the train crew to a hospital where his foot was amputated, apparently still over his protests. The defendant was found not to be liable on the grounds that an emergency existed. Apparently the court was also applying a rule of sympathy in favor of a defendant who in intention and fact assisted the plaintiff. The court said, "The circumstances certainly seemed to call for great haste, and one who endeavors to assist his neighbor who is in great danger and distress is certainly not liable for a mistake in judgment. . . ." The decision seems erroneous. The existence of an emergency should not permit even a well-intentioned good Samaritan to invade another's person against his protests. Perhaps the decision can be supported on the ground that a minor plaintiff could not effectively prohibit treatment when there was an imminent threat to his life or health. Certainly in an emergency where the consent of some other person who would have the power to give it can not be obtained, the protests of one *non compos mentis* or of an immature minor should not control.

Two Colorado cases involved protest against any treatment whatsoever. In *Meek v. City of Loveland* plaintiff, who had been wounded by a police officer but against whom no charges had been filed, was forcibly removed from his home by several city officials to the county hospital where his leg was amputated. A nonsuit as to the city officials and the operating surgeon was granted by the trial court, and on appeal this was reversed. The court appeared to consider that the city officials might be liable for false imprisonment, while the operating physician would be liable only for negligence. In a later Colorado case plaintiff was treated by defendant, who was employed by plaintiff's workmen's compensation carrier, for a fractured ankle, although plaintiff had ordered him off the case. A charge of assault and battery was dismissed because plaintiff also alleged negligence and the two were held to be wholly inconsistent. The court stated:

Negligence in treatment, as alleged in the complaint, and treatment without employment present basically different claims. . . . The one is based on the existence of a contract and authority for service, and the other upon the lack of such contract or authority. The one is based on lack of care or skill in

the performance of services contracted for, and the other on wrongful trespass on the person regardless of the skill or care employed. The assertion of one is a denial of the other.

Apparently Colorado would recognize a battery action only when there existed no contractual relation between the physician and the patient, a rare situation. In a subsequent Colorado case where plaintiff consented to be circumcised and instead a vasectomy was performed, the court stated that since the plaintiff had consented to an operation the cause of action was not for assault and battery, but for negligence. The court described the conduct as not constituting negligence in the sense of lack of skill but in that degree of care owed to the patient in the practice of the profession. Plaintiff apparently could make a prima facie case by proving a sufficiently clear and definite contract and the performance of the operation in violation of its provisions.

Must Obtain Consent to Do Other Procedures

The physician may have received consent to perform a specified operation or treatment, but during the course of the procedure he may discover some other condition which, in his best judgment, should be corrected. If he does so without obtaining the consent of the patient or someone authorized to act for him, does he commit a battery? It is assumed that in this situation he does not violate some specific prohibition laid down by the patient.

Perhaps the most cited case dealing with this problem is *Mohr v. Williams*. Plaintiff consulted the defendant concerning difficulty she had been having with her right ear. The defendant advised an operation to which plaintiff agreed. After anesthetizing her, he discovered that the left ear was seriously diseased and proceeded to perform the same operation on the left ear which had originally been intended for the right one. Plaintiff thereafter filed suit claiming that an impairment of hearing resulted from the performance of an unauthorized operation. The court held that the operation was an assault and battery and skill in its performance would not be a defense. No emergency existed because there would have been no serious damage to the patient as the result of delay until consent could be obtained.

In *Paulsen v. Gundersen* a radical mastoid operation was performed on a patient who had contracted for a simple mastoid operation. During the course of the operation a facial nerve was severed which caused a paralysis of the left side of the face. The court stated that if the radical operation was performed without consent, express or implied, the defendant would be guilty of an assault. Damages should be limited, the court indicated, so as to exclude the expense, pain and natural or necessary results of the

simple operation to which there had been consent. In *W'all v. Brim* plaintiff consented to a simple operation for the removal of a cyst from her neck. After an incision had been made and while plaintiff was conscious, defendant found that the operation would be much more serious and fraught with danger. Without telling plaintiff of this development, he proceeded with the operation during which adjacent nerves were unavoidably injured. It was held that plaintiff could recover for a battery if the surgeon performed an operation different in kind from that consented to or one involving risks and results not contemplated.

The removal of plaintiff's tonsils when she had submitted to an operation on the septum of her nose was found to be a battery in *Hively v. Higgs*. The court stated that the circumstances did not present a case of a condition discovered in the course of an authorized operation which could not have been discovered prior to the operation nor a case where an immediate operation was necessary to save the life of the patient. In *Reddington v. Clayman* it was held that an intentional removal of an uvula during an operation for removal of tonsils and adenoids would be a battery. In *Thomsen v. Burgeson* no expert testimony was required to establish plaintiff's case in an action for removal of uvula and soft palate during an authorized tonsillectomy. The plaintiff in *Valdez v. Percy* consented to the removal of an enlarged axilla gland under her right arm. The gland was sent to a laboratory for an examination to determine its nature. Conflicting reports were received from the laboratory, first a report of cancer of the breast and subsequently Hodgkins' disease. The surgeon, nevertheless, removed the patient's right breast. The court held that evidence as to whether plaintiff consented to a removal of her breast and as to whether a condition arose during an authorized operation which required another operation should have been submitted to the jury.

A consent to an operation to strengthen the ligaments of a patient's spleen did not authorize the removal of the spleen in *Nolan v. Kechijan*. The appellate court reversed the action of the trial court in granting the defendant a nonsuit and held that to that point there was no evidence that the removal was incidental to the operation consented to or that removal was pathologically necessary.

An often-cited case which reached a result contrary to *Mohr v. Williams* is *Bennan v. Parsonnet*. The patient had consented to an operation to repair a hernia on his left side. After the operation was under way, the surgeon found a hernia which was in danger of strangulation on the right side. He then repaired this hernia rather than the one diagnosed earlier. In as assault and battery action, the trial court charged the jury that the operation would be a legal wrong

if not consented to, but that if, after the patient was unconscious, a condition was discovered which endangered the patient's life or health, the consent of the patient should be inferred. On appeal judgment for the plaintiff was reversed on the ground that the common law view, as stated in *Mohr v. Williams* and incorporated in the instructions given by the trial court, must be modified because of the use of anesthetics. The court stated that it was no longer possible to obtain consent during an operation and often a complete diagnosis could not be made until the patient had been anesthetized. Under such conditions, the court felt the surgeon's acts should not be circumscribed within the limits of an actual surgical emergency. If the patient has not chosen someone to act for him during his period of unconsciousness, the court stated that the law will recognize the surgeon himself as the representative of the patient for the purpose of determining what procedure is necessary. There will be a limitation upon the surgeon that he could not operate upon a patient against his will or perform upon him any operation of a sort different from that to which he had consented or which involved risks and results of a kind not contemplated. The acts of the surgeon as the representative of the patient would be such only within the general line of the treatment which had been agreed upon.

The result of the *Bennan* case seems correct. It could be justified on another ground. It appears that a true emergency existed since the hernia was in danger of strangulation with death a probable result. Factually, the case would seem to fall within the emergency exception recognized in *Mohr v. Williams*, but which was not applied because there was no emergency. Here the court regarded it as too restrictive on the surgeon. The result of the *Mohr* case seems unsound. While there was no emergency to permit a privilege or fictional implied consent, an express consent had been given which should have permitted a reasonable extension of surgery, a reasonable extension being one which is designed to relieve the complaint of the patient, be it ear trouble or abdominal pain, and which does not materially increase the risk contemplated by the patient. There should be no need, however, to indulge in another fiction by transforming the surgeon into a representative of the patient for the purpose of determining what shall be done or to give consent to himself.

Facts similar to *Bennan* are found in *Stone v. Goodman*. Consent was given to operate on an umbilical hernia and a hernia on the right side. After repairing the umbilical hernia, the surgeon discovered another hernia on the left side on which he operated. Although plaintiff alleged that the operation was performed without his consent, the court used language which indicated that in such a situation the

surgeon would not be liable in the absence of a showing that he improperly exercised his judgment or failed to use ordinary skill, a test normally applied in a negligence malpractice case, not one involving an unauthorized operation. The *Bennan* case was not cited. In *McGuire v. Rix* the court, without referring to the *Bennan* case, stated that the use of anesthetics has modified the common law rule. The case was decided, however, on the ground that plaintiff had actually consented by her conduct.

Surgery on Females

Abdominal surgery performed on female patients has given rise to a number of cases. In *King v. Carney* plaintiff, who had been informed by her family doctor that the reason for frequent miscarriages was a lacerated uterus, told the defendant she wanted to be "fixed up" so she could bear children. After making an incision, the defendant-doctor found she could never bear children because her Fallopian tubes were sealed and full of pus and her ovaries were badly infected. While plaintiff was under the anesthetic, the surgeon removed the diseased organs. A judgment for plaintiff was reversed because the trial court excluded testimony regarding the diseased condition of the organs and the danger to plaintiff's health and life if they were not removed. The court stated that if in the course of an authorized operation the physician should discover a condition not anticipated before the operation and which, if not corrected, would endanger the life or health of the patient, he would be justified in extending the operation without express consent. The holding of the case was that patient's directions authorized the defendant to perform a diagnostic operation and to perform such operation as might be necessary to effect a cure. There was no violation of an express prohibition, and, although the court referred to consent implied from the existence of an emergency, there was an actual consent by the patient to do what was necessary with the implied limitation that nothing be done which would prevent her bearing children.

Liability for a battery was found in a Kentucky case where a patient's Fallopian tubes were removed during an authorized appendicitis operation. An instruction to the effect that if the defendant was expressly authorized to operate for appendicitis and found in the course of the operation that plaintiff's Fallopian tubes were in a diseased condition and that in his judgment, in the exercise of ordinary care and skill, such condition if not removed would have endangered plaintiff's life and health, then the defendant was justified in removing the diseased tubes even though no express consent was obtained or given was held to be error. The instruction was bad because it failed to distinguish between a condition which

might endanger the patient's life or health in the future and an immediate emergency in the sense that the tubes were in such a condition that they might have ruptured immediately or because a later operation might have unduly endangered the plaintiff. The result is reconcilable with *King v. Carney* although in the latter case the court did not so carefully consider the factors which would create an emergency. In the Oklahoma case the facts disclosed actual consent, so consent implied by an emergency was not necessary.

The case most closely following *Bennan v. Parsonnet* is *Kennedy v. Parrott* where the surgeon, while performing an authorized appendectomy, discovered some enlarged follicle cysts on the patient's ovaries. Although no immediate emergency existed, the surgeon punctured them. The court stated that where an internal operation is necessary both the patient and the surgeon know that there can be no definite diagnosis until after an incision has been made. Under such circumstances, the court continued, the surgeon, absent proof to the contrary, may extend the operation to correct any abnormal or diseased condition in the area of the original incision whenever he, in the exercise of his sound professional judgment, determines that correct surgical procedure requires an extension. The court would not limit the right to extend an operation only when an emergency existed. As in the *Bennan* case, the court said that the law will appoint the surgeon as the agent of the patient when no other has been appointed. Despite the reference to the area at the incision, the authority, however, would apparently not extend to a different operation or one involving risks and results of a kind which were not contemplated. Here the operation was in the immediate area of the original incision and was apparently a simple one with slight risk. There is an obvious difference between puncturing a cyst and performing a total or subtotal hysterectomy. Although this court found no battery, a verdict for nominal damages only would probably be all that would have been allowed in other jurisdictions "adhering to the fetish of consent," since plaintiff apparently could show no damages resulting from the operation.

In two other cases involving the extension of an appendectomy, the physician was found not to have committed a battery. The surgeon in *Russel v. Jackson* had been employed to remove plaintiff's appendix and straighten the position of her uterus, but was told to do nothing which would impede pregnancy. During the course of the operation, he discovered her Fallopian tubes and ovary were adhered to the uterus and there was a cyst on one ovary. In correcting the condition, a portion of an ovary was removed. The court found that the defendant did not violate the prohibition and what he did was within the scope of

what he was requested to do, straighten the uterus. A general authorization for the physician to use his best judgment was held to be a consent to the removal of Fallopian tubes in *Rothe v. Hull* during an emergency operation in which the patient's appendix was also removed. During an external examination, defendant had told plaintiff he found an enlarged and tender structure in the tube region.

Although an appendix was admittedly removed without consent in *In re Johnson's Estate*, it was error to submit the issue to the jury where plaintiff's physician testified that the appendix should have been removed and there was no evidence that its removal caused any damages for which plaintiff sought to recover. The existence of an emergency was held to justify the removal of an acute appendix during an operation for what had been diagnosed as a tubal pregnancy in *Barnett v. Bachrach*.

The performance of a subtotal hysterectomy was held not to be a battery in *Wheeler v. Barker*. Plaintiff had signed a general consent form which authorized whatever operation might be decided to be necessary or advisable. This was held to furnish the basis for the admission of evidence tending to show that a necessity, which the court deemed equivalent to an emergency, existed for the removal of two-thirds of plaintiff's uterus. Plaintiff contended she had consented only to the removal of her right ovary. A subsequent California case, *Danielson v. Roche*, considered the effect which should be given to a similar general consent. Defendant had diagnosed plaintiff's severe abdominal pains as appendicitis and recommended an immediate operation. In addition to the appendix, he removed a part of plaintiff's Fallopian tubes which he found to be infected. Uncontradicted expert testimony on behalf of the defendant was to the effect that the operation was necessary to save the patient's life because of the danger which existed from the possibility of free pus in the abdomen. The court held that the operation was proper not only because of the existence of an emergency but also because the written consent was interpreted to cover such an eventuality, that is, such services and operations as might be deemed advisable or necessary.

In *Wells v. Van Nort* plaintiff submitted herself for an appendectomy and the defendant removed her Fallopian tubes which he found diseased. There had been no discussion of such a possibility, and the physician had assured her the operation would be a simple one. It appeared that if the tubes were not removed, plaintiff would be back in the hospital within two or three months. The court reversed the trial court which had entered judgment for the defendant and stated that since plaintiff testified she had not consented to any other operation than the removal of her appendix, the case should have gone to the jury for a determination as to whether she had assented, expressly or impliedly. The court did not con-

sider the question of justification by emergency. A petition which alleged an unauthorized removal of plaintiff's appendix when she had submitted to an operation for removal of her ovaries was held to state a cause of action in *Church v. Adler*. Against a contention that the operation had in fact benefited the plaintiff, the court said that a removal of the appendix without consent would nevertheless be a tort for which at least nominal damages could be recovered.

In *Beringer v. Lackner* a vaginal hysterectomy was performed because of difficulties encountered in attempting a curettement. A judgment for the defendant was reversed because there was no evidence to show actual consent, an emergency, or that it was impractical to obtain consent from one who would be qualified to give a consent for the unconscious patient. A petition which alleged an unauthorized removal of Fallopian tubes during a Caesarean section was held not to be barred by the statute of limitations applicable to assault and battery actions in an Oklahoma case, *White v. Hirshfield*. The defendant's conduct was described as a technical assault and battery, but the court said that an assault and battery committed by a physician on his patient is also a violation of a duty. For the purpose of the statute, the plaintiff was permitted to waive the technical assault and battery and rely on the right to recover damages by reason of the wrongful and unskillful acts of the physician.

Implied Consent

Although the patient may not expressly consent and although no emergency exists which creates an implied consent, a consent may be implied from the conduct of the patient or from surrounding circumstances. Thus a woman who held out her arm to a ship's surgeon was held to have consented to a vaccination. One who submitted himself to the care of a physician for the removal of a foreign object from his eye was held to have consented to a removal by surgery, not just by magnet.

In *Hall v. United States* the wife of a serviceman brought an action under the Federal Tort Claims Act claiming that specific consent should have been obtained for the administration of a spinal anesthetic. Consent was implied in fact in that she entered the hospital for the purpose of being delivered, knew that childbirth was painful, that some anesthetic would be used, and that others with whom she talked had been so anesthetized. It is interesting to note that under the interpretation of the Federal Tort Claims Act in *Moos v. United States*, she could not have recovered if a battery had been found. A judgment for the defendant was affirmed in *Knowles v. Blue* where the plaintiff, with knowledge that skin grafting might be necessary, requested the defendants to furnish surgical and medical attention for the reasonably necessary and proper treatment of his

feet. The act complained of was the grafting of skin from the patient's thigh to an ulcerated condition on his feet.

The court in *Franklyn v. Peabody* found no consent where the plaintiff submitted to an operation to correct a stiff finger. After the anesthetic was administered and the hand was opened, the surgeon discovered that adhesions made necessary the sheathing of each tendon in added fascia. Fascia was obtained from the patient's leg and transferred to the hand. The court found that the patient had not consented expressly and that there was no emergency which authorized the operation. To the extent that the court found no emergency, the decision seems correct. It does appear, however, that a consent in fact existed since what was done, as in the cases discussed above, was something which had not been prohibited by the patient and was a procedure followed to achieve the result sought by the patient which did not materially increase the risk. Liability in such a case should be for negligence, if any, not for an assault and battery.

Consent to surgical procedure was found to be implied from the plaintiff's conduct in *McGuire v. Rix*. Plaintiff had suffered a broken ankle, and after manual manipulation had failed to reduce it, she went to the hospital where the defendant, a surgeon, was called into the case. An appreciation of the seriousness of the situation was shown by her request to the surgeon not to cut off her foot. She then consented to the administration of an anesthetic. After manual manipulation, the surgeon cut into her foot so that he could set the bones. In *Baxter v. Snow* the plaintiff consulted the defendant regarding a hearing difficulty in his left ear. A catheter was used in the treatment. Plaintiff claimed that this was unauthorized and resulted in a loss of hearing in the ear. The court said that the case was not one of treatment without consent, express or implied, since the plaintiff had submitted himself to treatment of the ear and submitted voluntarily to the insertion of the catheter.

In *Gould v. Kerlin* the defendant had written plaintiff's family physician a letter in which he outlined the procedure he intended to follow in removing an ovarian tumor. Subsequently, and after her physician had given her the letter, she presented herself to the defendant for the operation. After the operation plaintiff contended she had consented to an operation through the wall of her abdomen but not to a lower or rectal operation, which was the method outlined in the letter written by the defendant. The court found the defendant had no knowledge that plaintiff objected to that procedure and a reasonable inference was that it was done with her knowledge and consent. The resolution of a fact question against the defendant brought about a contrary result in *Throne v. Wandell*. Plaintiff was given a dental card by her dentist when she was referred to the defendant for x-rays. The card contained a legend, "Kindly

mark teeth to be extracted," and defendant extracted six teeth which had been marked on the chart. Plaintiff testified she did not know what the card contained and had told the defendant she had come for an examination. Defendant's witness testified defendant asked what teeth were to be extracted and plaintiff answered that they were indicated on the card. Plaintiff also testified that she protested when she realized that an anesthetic was being administered. The jury's special verdict was in favor of the plaintiff, but a new trial was ordered unless plaintiff should remit a portion of the damages awarded.

In contrast to the preceding cases, claims for assault and battery have also been asserted against the surgeon on the ground that he had done less, rather than more, than he had agreed to do. In *Britton v. Hartsborn* the patient had consented to an operation for the removal of a uterine tumor which, until the operation, could not be definitely diagnosed as to its nature. After making a preliminary incision for inspection purposes, the surgeon discovered a fibroid tumor which would have been dangerous to remove with the equipment and assistance available at that hospital. The court held it was proper to refuse an instruction that consent for removal of a tumor did not authorize a lesser operation such as the one performed, where the procedure was discontinued because of a discovery during the course of the operation of a condition which made immediate removal hazardous and therefore inadvisable. A similar result was reached in *Huttner v. MacKay* where it was contended that consent to remove a tumor by a craniotomy did not authorize an exploratory craniotomy. The operation which was performed was not exploratory in the diagnostic sense, but during the operation the surgeon found that the tumor could not be removed without grave risk to the life of the patient. The court held that the authority to remove the tumor carried with it the implied authority not to do so when death would be the most probable result.

In each of the cases the surgeon might have been guilty of negligence by virtue of his failure to complete the operation. In each, negligence might have been found had he proceeded with it. Since the surgeon in such a case has entered upon the operation which was authorized, it does not seem that a battery should be found in a failure to complete it. The question should be whether he has properly performed his duty to his patient.

Repair Conditions Caused by Surgery

The surgeon may be confronted with a situation in which he finds it necessary to repair or correct conditions which were caused by the surgery which was authorized. In *Delabunt v. Finton* defendant passed a filiform bougie through plaintiff's urethral passage while plaintiff was under anesthetic. Plaintiff had consented to a diagnostic operation. The bougie looped

and could not be withdrawn. The court held it was proper for the surgeon to operate to remove the bougie without the consent of the patient because he was confronted with an emergency. Consent to the removal of an impacted wisdom tooth was held to be consent to repair a fracture of the jaw which occurred during the extraction. The court said that an emergency existed and under such circumstances it would be the duty of the defendant to repair the jaw. A later operation to remove a needle which had been left in plaintiff's abdomen during an authorized operation, was held, in *Higley v. Jeffrey*, not to be a second and independent operation but merely incidental to the main operation. The court reasoned that the operation would not be complete until the needle was removed. In *Barnett's Adm'r v. Brand* the court held that the failure of the defendant physician promptly to open an incision and explore for and remove a pad which had been left in the abdomen after an operation was evidence of negligence.

The defendant in *Gis v. French* failed to tie off an artery severed during an operation and several days later performed another operation to correct the condition. A verdict for the plaintiff was sustained on the ground that defendant was negligent. With reference to the question of consent, however, the court stated that a physician could not negligently create a pathological condition in a patient and then operate without consent of the patient and without telling her what had happened. Failure to allege that an operation performed to tie off a vein which was torn in the course of treatment was unauthorized was fatal to plaintiff's case in *Gregoris v. Manos*. The court said that if plaintiff had alleged an operation without consent, plaintiff would have been entitled to a charge that he should recover, if the jury found no consent to the operation. It appears, however, that the entire course of treatment had been different from that described to the patient by the physician. In *Markart v. Zeimer* plaintiff alleged that in the course of a hernia operation the defendants negligently closed off the blood to his right testicle and negligently made an incision in the testicle. In another count he alleged the foregoing and also that a second operation in which the testicle was removed was performed without his consent. Verdict for the plaintiff was reversed on the ground that since there was no evidence of negligence in the first operation, that issue should not have been presented to the jury. The court said that if the issue of the unauthorized operation alone had been submitted to the jury, a finding in favor of the plaintiff might have been sustained.

Whether the condition which requires correction was created negligently or without fault should not be a deciding factor. If the surgeon discovers the condition at a time when consent cannot be obtained and which, unless promptly corrected, endangers the pa-

tient's life or health, he should be privileged to correct it although it was caused by his own negligence. Liability should then be determined by expert testimony as to whether a reasonable doctor would consider that an emergency existed.

Mix-Up in Patients

Mistake in identity may give rise to a battery. If the treatment which is administered by the physician was intended for someone other than the plaintiff, but as a result of a mistake is administered to the plaintiff, the physician cannot defend on the ground of a non-negligent mistaken or a good faith belief in the existence of a privilege because the infliction of the legally harmful or offensive contact on the plaintiff was an intentional act. Physicians have been held liable for administering a blood transfusion intended for another patient, for subjecting a patient to a spinal puncture intended for another, and for washing out the antrum of a patient as the result of confusion with another. Surprisingly, only in the latter case was liability based on a finding of an assault and battery. In the other two cases the courts characterized the conduct as negligent, probably because the plaintiffs apparently alleged and proved negligence. Since the act is intentional, however, no requirement should be made that a plaintiff further establish that the mistake as to identity was a negligent one.

Another type of mistake may occur when the physician, who has the protection of a valid consent to operate on or treat a particular part of the body, operates on another part of the body by mistake. In *Moos v. United States* plaintiff had entered a veterans' hospital for an operation on his left leg and hip. Instead, through inadvertence, a government surgeon performed an unnecessary and uncalled-for operation on his right leg and hip. The complaint alleged negligence in performance of the wrong operation. The court held that plaintiff had stated a claim for an assault and battery, and therefore, no recovery could be had under the Federal Tort Claims Act. Under Minnesota law, the court stated, there would be liability for an assault and battery regardless of lack of intent or negligence. A similar mistake was made in a Michigan case where the defendant became confused and operated on plaintiff's left leg rather than on the right one. No cause of action for assault and battery was found since the only issue averred and tended to be established by the proof was a negligent mistake in operating on the wrong leg. The court also apparently regarded the general consent to the operation sufficient to bar a claim based on a battery. It, however, does not appear that the court would require plaintiff to establish a prima facie case by expert testimony. In a New York case no necessity for expert testimony was found to exist where the cause of action was for negligence in the extraction by the defendant

dentist of the wrong tooth since the want of skill or care was so obvious.

As a result of reading an x-ray improperly, the defendant in *Hershey v. Peake* extracted teeth from the wrong side of the plaintiff's mouth. Defendant contended that the action was one for an assault and battery and was barred by the statute of limitations applicable to such actions, but the court held the mistake to be negligence rather than assault and battery. A distinction was drawn between assault and battery on the one hand and negligence constituting malpractice on the other on the basis that the former is intentional and the latter unintentional. The court apparently reasoned that since the defendant did not intend to extract the teeth which he extracted, he did not do so intentionally. This is not so; his act was an intentional one in the sense that he did exactly what he intended to do, extract the teeth, albeit under the mistaken belief that he was privileged to do so. His act was one which, if not consented to, would inflict a harmful or offensive contact upon the plaintiff and so would be a battery. Perhaps the case can be explained on the ground that a claim for a battery was outlawed by the statute of limitations, while an action for negligence was not. It appears reasonable that a plaintiff upon whom a battery has been committed by his physician should not be barred by the statute of limitations before the time the statute would run on a concurrent act of negligence by the physician. Whether the claim be based on battery or negligence, it is still a wrong committed in the course of the physician-patient relationship, and regardless of any classification of conduct as an intentional tort, an unintentional tort, or a breach of contract, the limitation period should be the same.

An assent to an operation which has been secured by fraudulent misrepresentations as to the nature of the act to be performed would be no consent and the operation would be a battery. In *Hobbs v. Kizer* the plaintiff, who had been the mistress of the defendant, became pregnant. Under the representation that she had an abscess in her vagina, the defendant performed an abortion. It was held that no true consent existed and that plaintiff could recover damages from injuries which resulted. In *Birnbaum v. Siegler* the complaint alleged that consent to the performance of an operation had been obtained by false representations. The court stated that in legal effect such consent is not valid.

Failure to disclose a material fact concerning a contemplated operation may nullify a consent, although no fraud is found. In a recent Minnesota case, *Bang v. Charles T. Miller Hosp.*, plaintiff consented to a transurethral prostatic resection. As a matter of routine the operation involved a severing of the spermatic cords. Plaintiff testified he had expected the defendant to do what was necessary and right to cure

his condition, but nothing had been said between them concerning the fact that plaintiff would be rendered sterile by the operation. The trial court sustained a motion for a directed verdict at the close of plaintiff's evidence. The sole question on appeal was whether the issue of assault and battery should have been submitted to the jury. The supreme court reversed and said that the patient should have been informed before the operation that if his spermatic cords were severed it would result in his sterilization but that if this was not done there would be a possibility of infection. This case recognizes that if the patient in fact is going to be the final arbiter, he must have material facts made available to him so that his choice can be an enlightened one. A similar question was presented in *Hunt v. Bradshaw* in which the defendant represented the operation as a simple one when in fact it was not. Plaintiff alleged negligence, however, and his case failed because of a lack of expert testimony that the defendant failed to exercise due care in the operation or to use his best judgment in advising it. A concurring opinion commented on the fact that plaintiff had not elected to bring his action on the ground of an injury resulting from an unauthorized operation. Although the opinion avoids any overt suggestion that the result might have been different had plaintiff done so, a number of authorities are cited for the general proposition that the patient must be the final arbiter as to whether he will take his chances with the operation or take his chances of living without it.

The problem of disclosure is a complex one involving on one hand the right of the patient to decide for himself and on the other a possible therapeutic ground for withholding information which may create tension by depressing or exciting the patient. It is beyond the scope of this article to consider this problem.

Must Be Capable of Giving Consent

In several situations a consent will not protect the surgeon if even the procedure is within the scope of the consent. Thus a person who is *non compos mentis* is incapable of giving a valid consent, and unless an emergency exists, the consent of one standing in the position of guardian must be secured. In *Farber v. Olkon* the legs of a 32-year-old schizophrenic were broken during the administration of shock treatment to which the incompetent's father had consented. Subsequently a suit was filed by the patient who claimed an assault and battery because the treatment was unauthorized. The court held that a parent who has legal responsibility to maintain an adult incompetent child may authorize medical treatment where no guardian has been legally appointed. Where no legal guardian has been appointed, it appears that the spouse of the incompetent can give a valid consent.

Lester v. Aetna Cas. & Sur. Co. was an action for injuries which resulted from allegedly unauthorized treatments. It appeared that both the plaintiff and his wife had consented to the treatment. The court held that if further consent than that given by the plaintiff was needed, the wife could and did give sufficient legal consent.

In a recent Missouri decision the court discussed the right of one spouse to receive advice about the status of the other and to give consent to treatment for the other. The question arose in a negligent malpractice action, and the court stated that if the patient is unconscious or incapable of understanding, the physician may have a duty to communicate with and advise the spouse or other members of the family who are available and competent to advise with or speak for the patient. Whether the duty would exist in a particular case would depend upon such circumstances as the seriousness of the need, the urgency of the situation, and the time or interval of the patient's mental incapacity.

The defendant in *Littlejohn v. Arbogast* was prevented by a delirious patient from administering an anesthetic so that a dislocation of his hip could be reduced. The members of the immediate family also refused to consent. The patient thereafter brought a negligence action based upon the failure of the defendant to perform the reduction. The court said that if the patient was delirious and could not be made to understand the necessity for treatment, the physician could cooperate with the immediate family and resort to force. It was held that if the family refused consent under such circumstances, the physician could not be liable for injuries which resulted from a failure to use the proposed treatment. The case suggests another provocative question. If the consent of the patient cannot be obtained because he is unconscious or delirious and the spouse or other representative refuses to consent, can the physician safely proceed? The courts have not answered this question. If the patient has actually appointed someone to speak for him, a prohibition by that person should be as effective as one by the patient himself. If no specific appointment has been made but the spouse or other person speaks only with authority implied by law, the result might well be different since in an emergency the authority of the physician is also implied by law.

Without discussion it may be assumed that a nontherapeutic abortion is condemned by society and its laws. Its performance has been made a crime under the criminal statutes of all the states. The consent of a woman to the abortion will of course not be a defense to criminal prosecution. Is the consent a bar to a civil action for damages by the woman involved? The affirmative and negative answers to this question are about evenly divided.

In *Milliken v. Heddesheimer* the court held that consent would not preclude a civil recovery because the common law rule embodied in the legal maxim *volenti non fit injuria* should not be a bar when the public peace or the life or person of a citizen is involved. In so holding the court applied the rule as stated by Cooley. According to Cooley, consent is generally a full and perfect shield from a claim for a civil injury. An exception is stated to exist in the case of a breach of the peace or when the life or person of a citizen is involved. In such a case the law will not listen to an excuse based on a breach of the law. The state will not permit others to deal with the public peace on a basis of contract. Therefore consent to an assault cannot be a justification so as to bar a civil action. Applied originally to instances of mutual combat, this case and *Martin v. Hardesty* extended the reasoning to cases of nontherapeutic abortions.

In three recent cases the Kansas Supreme Court has upheld a right to recover civilly despite consent, at least where the abortion was negligently performed. If the defense is based on *volenti non fit injuria* alone, the result, if limited to a situation in which there is negligence in the performance of the operation or in aftercare, is sound. The woman in such a case does not claim a battery and any consent was not to negligent conduct. The *Restatement of Torts* contains the following illustration: "A, at B's solicitation, performs a criminal abortion upon her. The operation is skillfully performed. A is not liable to B." In the 1948 supplement to the *Restatement*, a comment to this section was added which stated there may be liability for any negligence in performing the operation, as in the case of the use of unsterilized instruments. In all of the Kansas cases, the petitions alleged negligence, but it appears from the reasoning of the court in *Joy v. Brown* that recovery would also be permitted in an assault and battery action. The court emphasized that the woman had no criminal liability, that on their face the Kansas statutes do not condemn the woman or make her an accomplice, and that the statutes were adopted not only for the purpose of protecting the life of the unborn child but also that of the mother.

Abandonment

In two jurisdictions it has been held that recovery will be permitted where the complaint alleges complications resulting from an abandonment of the woman with the knowledge that she is seriously ill. "A physician and surgeon has no more right to abandon his patient under such circumstances than he would had she been his patient under ordinary circumstances and in the best of faith."

In *Hancock v. Hullett* the consent of a 17-year-old girl was held not to bar an action by her father for loss of services and medical expenses. Since she was

a minor, probably her consent would not have been effective had the abortion been justified therapeutically.

Where recovery has been denied, the reasoning has usually been that the female was guilty of a crime or was a voluntary participant in an illegal and immoral transaction and so was barred from maintaining a cause of action based on such transaction. Apparently consent alone is not the bar; it is because the consent is to an illegal and immoral act. Such was the holding in *Miller v. Bennett* where recovery was denied on the ground that plaintiff's decedent was guilty of moral turpitude by participating in the violation of the anti-abortion statutes of Virginia. The doctrine of *ex turpi causa non oritur actio* was held to apply to civil actions whether based on contract or tort. The exception to the rule, as stated by Cooley and applied in *Milliken v. Heddesheimer* and *Miller v. Bayer*, was rejected by the court as being based on fallacious reasoning. As Bohlen has pointed out, the rule was born as dictum in an early English case which was decided at a time when the crown and the individual whose interest was invaded both were interested in the outcome of the writ of trespass—the crown in the fine to be imposed and the individual in the damage sustained. Since the action of trespass had a criminal character, the state was directly concerned in it. Obviously the consent of the individual should not bar a criminal action by the state, then or now. Today, however, the writ of trespass is not the method whereby breaches of the peace are punished. The state can prosecute, although the individual has consented. Long prior to the Bohlen article, the Kentucky court in *Goldnamer v. O'Brien* took a similar position when it denied recovery where the woman consented. The court criticized those cases which allowed recovery as failing to distinguish between the civil remedy and the criminal penalty.

In support of a denial of recovery, several courts have taken the position that the statute which was violated was enacted not for the benefit of the mother, but for the benefit of the child and through it society. The view is that since the mother does not fall within the limited class the legislature intended to protect, the public policy would seem not to be defeated by a denial of recovery in a civil action. In one of these cases, the court denied recovery to a consenting woman by applying the doctrine of *pari delicto*. The court also indicated that the result would be otherwise in an assault and battery case or one of mutual combat. Although under Oklahoma law the woman was guilty of a crime, this does not seem to be a decisive fact in the case. In other jurisdictions the woman was guilty of nothing more than a moral crime and yet was denied recovery. The doctrines of *ex turpi causa* or *pari delicto* have also been applied in several cases where negligence was alleged.

The overwhelming weight of the more recent authority is to deny recovery. In no instance has this denial been based solely on *volenti non fit injuria*. It has been because the female consented to and participated in an illegal act. In those cases in which recovery has been permitted, *volenti non fit injuria* has not been a bar, because her consent to an illegal act could not bar a civil action for damages. Whichever the result, the determination has rested upon the fact that the woman consented to an illegal act. One group of cases denies recovery for this reason; the other group allows recovery for the same reason. Both rely upon doctrines which are of questionable application in this situation. More than thirty years ago, Bohlen exposed the fallacy underlying the exceptions to the rule that consent is a defense to an action for civil damages. On the other hand, the doctrine of *pari delicto* should not be blindly applied to defeat the action. Where the woman is not guilty of a statutory crime, it can be argued that she is not in *pari delicto*. The conduct of a frightened, desperate woman faced with social ostracism if she goes to term and abandoned by the father or being subjected to pressure by him "to have something done" does not seem to be as culpable as that of the abortionist. It is not suggested that the doctrine have no application, but that it not be an automatic bar.

If under the facts of a particular case a woman should not be barred by being in *pari delicto*, the question of consent still remains. Under the maxim *volenti non fit injuria*, consent should be a defense to any claim based on an assault and battery. It should not be a defense to a claim for negligence either in the performance of the abortion or in postoperative care. The woman simply does not consent to such negligence.

Nontherapeutic Abortions

Since nontherapeutic abortions are anti-social and should therefore be discouraged, consideration should be given to the effect on the future conduct of others in allowing or denying a remedy. If the existence of a criminal penalty will not deter an abortionist, it would seem that the added imposition of civil liability would mean little as a deterrent factor. As to the woman, although obviously she would not be deterred by permitting her to base a cause of action founded on her own wrongful act, it does not seem reasonable that the existence of the remedy would play a significant part in any decision to submit to such an operation.

Insofar as civil liability for a battery is concerned, the performance of a non-therapeutic sterilization has been compared to the performance of a non-therapeutic abortion, but this writer has been unable to find a single reported case in which a person who consent-

ed to a sterilization operation sued the physician for an assault and battery.

Minors and Consent

Works on medical jurisprudence commonly state that a minor is incapable of consenting to the performance of an operation on himself and that the act of the surgeon in performing an operation without the consent of the parent is an assault and battery for which the child may recover. While the reported cases dealing with this problem contain language supporting the statements appearing in the texts, a careful examination discloses that such a strict rule is not always applied. Emphasis has been placed upon such factors as whether the child was of tender years or of mature development although technically a minor, whether the operation was major or minor, whether an emergency existed, and whether the operation was for the benefit of the child or for the benefit of another.

In *Bonner v. Moran* a 15-year-old boy had consented to serve as a blood and skin donor in a plastic surgery procedure. No consent was obtained from his parents. The trial court in effect instructed the jury that consent of a boy of such age dispensed with the necessity of consent by his parents. This instruction was held to be erroneous. The court stated that a surgeon has no legal right to operate on a child without the consent of his parents or guardian. Despite this language, the basis for the decision seems to be that the court felt only a mature mind could appreciate precisely the nature and consequence of the procedure which was not performed for the benefit of the child, but solely for the benefit of another. The court recognized that an exception might exist in some cases if the child was close to maturity.

Although the child may be in the temporary custody of some person other than his parents, it has been held that such temporary custodians have no authority to consent to an operation. In a Texas case an 11-year-old child died while under the influence of an anesthetic administered for the removal of badly diseased tonsils and adenoids. The child, whose home was 60 miles away, had been taken to the physician's office by two adult sisters. The court said that the law wisely gives the parent the care and custody of the child and with this the right to determine whether the operation should be performed. The child was of a tender age, and while an operation was probably necessary, no immediate emergency existed. No real danger of the life or health of the child would have existed had the physician waited to consult with the parents.

In *Lacey v. Laird* an 18-year-old girl recovered in the trial court for damages which resulted from plastic surgery performed on her nose. On appeal one of

several instructions complained of was that a minor of such years could not consent to a simple operation. The judgment of the court of appeals which reversed the trial court was affirmed per curiam. In a concurring opinion one judge took the position that the trial court did not err in its charge on the subject of consent. His position was that the general rule should apply unless an emergency situation justified the operation. The rule, according to this opinion, is not based on the capacity of the minor to consent in the fields of the law of torts or the law of crimes or the law of contracts, but upon the right of parents whose liability for support and maintenance may be greatly increased by an unfavorable result.

In *Rogers v. Sells* the foot of a 14-year-old boy was amputated after a serious automobile accident. Admittedly there was no express consent to the operation. The court held that the surgeon who relies on the defense of emergency has the burden of proof as to that issue.

An illustration of the perplexing alternatives which may face the physician is found in *Browning v. Hoffman*. The cause of action asserted was not based on assault and battery but on alleged negligence in the failure to discover the existence of gangrene. Had an operation been performed at an earlier time, it appeared that the minor's leg would have been amputated at the knee rather than at the hip as was ultimately necessary. There was evidence that efforts were made to locate the parents so that their consent to an earlier operation could be secured and further that the mother would have refused her consent until her husband, who was not available, could have been consulted. Although the case was tried on a negligence theory, the court noted that except in an extreme case, a surgeon has no right to operate upon a child without the consent of the parents or guardian. If the surgeon had operated without obtaining the consent and while the upper portion of the leg might have been saved, he might have been faced with an assault and battery action.

Emergencies

When there is an imminent threat to the life or health of the minor and it is impractical to obtain the consent of the parents or guardian, consent will be implied in law as it is in the case of an unconscious adult. In several cases the existence of an emergency has been the deciding factor. In *Jackovich v. Yocom* an implied consent was found where the defendant amputated the arm of a 17-year-old plaintiff who had suffered a comminuted fracture of the elbow joint. Prior to commencing the operation, the physician attempted to get in touch with the parents but was unable to do so. The court found an implied consent from the emergency. The court also indicated that in

such a situation it is the duty of the physician to do that which the occasion demands within the usual and customary practice among physicians in the same or similar localities, without the consent of the patient. A similar result was reached in *Luka v. Lowrie* where it was necessary to amputate the foot of a 15-year-old boy in order to save his life. An emergency was found to exist in *Wells v. McGehee* where a seven-year-old child died while anesthetized for the treatment of an arm which had been fractured on the school playground. An unsuccessful attempt had been made to notify the child's mother and obtain her consent before the procedure was attempted.

The concept of emergency was distorted in *Sullivan v. Montgomery*, but the result seems just. A young man, 20 years and four months of age, suffered an ankle injury during a baseball game. In making an examination the surgeon told the boy that he would have to put him under an anesthetic in order to treat the injury. The reply was, "Well, if you think best, go ahead." Later the father complained because the anesthetic was administered without his consent and suit was filed. The court found that since the defendant was confronted with an emergency, the consent of the father was not necessary. The decision could better be based on the maturity of the patient and the simplicity of the procedure.

One court has followed the *Restatement of Torts* and has held that the consent of a 17-year-old to a smallpox vaccination was valid, because he had sufficient intelligence to understand and appreciate the consequences of what the court characterized as "usually a very simple operation."

In *Bakker v. Welsh* the patient, a 17-year-old boy, died while under the influence of an anesthetic which had been given for the removal of a tumor. Preparation for the operation was made apparently with the knowledge of the boy's father with whom he resided, and there was nothing to indicate the father would not have consented. The court also emphasized the nearness of the deceased to manhood and that the operation was ordinarily not dangerous.

In *Bishop v. Shurly* a 19-year-old boy died after administration of a local anesthetic for removal of his tonsils. His mother had instructed the physician to use a general anesthetic. Immediately prior to the operation, the deceased had requested that a "local" be given. The court found for the defendant because by statute in Michigan the infant could contract for necessities and so could effectively alter the contract made by his mother. While the result seems correct, the reasoning seems questionable. Technical rules applicable to the law of contracts should have no application where, if the age of majority does not control, the test should be whether the minor has sufficient maturity to give an enlightened consent.

One of the most dramatic problems in the area occurs when a parent refuses to permit the performance of a needed operation on a child. *In re Vasko* involved a small child who suffered from an eye disease which would inevitably result in death if not treated. The parents refused to consent to an operation for the removal of the eye and appealed from an order of the children's court which declared the infant a neglected child and provided for the necessary care and treatment. The appellate division held that the state in its position as *parens patriae* was justified in intervening and that the statute authorizing the procedure was constitutional. In addition, the court pointed out that under the New York Penal Law the parents could be guilty of a misdemeanor for willfully omitting to furnish medical or surgical attendance to the child. Nevertheless, in the absence of a court order, the physician would clearly have been unprotected had he proceeded to perform the operation. In a Washington case, *In re Hudson*, the court was unwilling to invade the province of the parents and reversed the superior court which had ordered amputation of a child's arm to eliminate a serious congenital defect. The court said: "However, while the parents are still the legal guardians of their minor children, no court has jurisdiction to invade that home, take a minor child therefrom, and over the objection of those natural and legal guardians, subject the child to a surgical operation." Recently a Missouri court refused to follow the *Hudson* case and affirmed an order of the circuit court which ordered a blood transfusion for a child who suffered from erythroblastic anemia which would have been fatal without the transfusions. Statutory authority existed for the procedure, but the court said that the statutes which related to neglected and dependent children merely codified traditional equitable jurisdiction.

It is clear that an operation on an immature infant, incapable of understanding the nature and consequences of the proposed operation, will be an assault and battery unless a parent or guardian consents. If the infant is sufficiently mature to understand the nature and consequences of the proposed operation and has consented to it after being informed of his condition and the proposed procedure, then the infant should be able to give a valid consent. There is little authority to support this position, although it has been incorporated into the *Restatement of Torts*. Consent implied in law as the result of an emergency has been applied in the case of infants as in the case of adults.

EDITOR'S NOTE: Due to limited space, all of the references and footnotes have been omitted. For further information and references consult the *Kansas Law Review*, Vol. 8, No. 3, pp. 405-434.

Are You Covered?

Medical Professional Liability Coverage and Exclusions

WILLIAM J. McAULIFFE, JR., Chicago

MANY HAVE WONDERED how the various carriers interpret their policies if the insured was charged with, for example a criminal act or an unauthorized act or operation or assault. A little over a year ago the American Medical Association sent a questionnaire to 35 insurers in the United States and received some 22 replies from carriers who write about 80 per cent of the medical professional liability insurance in this country.

The results of this survey give an insight not only of the policy provisions but also the underwriting philosophy of these companies. This is a review of the information which has been obtained as a result of that survey.

False Imprisonment

Does the medical professional liability policy provide coverage if the insured is charged with personal restraint and false imprisonment? Six of the 22 carriers replying to our questionnaire said, "Yes," without qualification regarding coverage. But 16 carriers qualified their coverage in some manner. For instance, one stated that "If the insured's report, our investigation, the allegations of the complaint disclosed a criminal act no insurance thereof would be provided by the policy."

Another stated, "We would normally expect to defend an insured accused of a criminal act, if he denies it. Until the contrary is proven or admitted, we would not expect to pay a judgment which was founded upon the performance of a criminal act by the insured."

And still another said, "The determining factor would be whether in fact a criminal act is involved. In drafting this particular policy provision, the criminal act exclusion was included as a protective measure to exclude those acts which clearly go beyond the border of good professional conduct. It was not the intention that the exclusion would be literally and technically applied but that it would be used in those cases where it seemed necessary and proper to do so."

Each carrier was asked if coverage would be provided if the insured went beyond the consent given

by the patient and was, subsequently, charged with assault and battery. Twelve of the 22 companies responded they would defend the physician and pay the judgment. The others generally did not refuse coverage but qualified their position with such statements as:

"In such cases it would be our policy to defend our insured but to reserve our rights under the policy should our insured be found guilty by a duly authorized court of having performed a criminal act. If the insured's report, our investigation or the allegations of the complaint disclosed a criminal act, no insurance thereof would be provided by the policy."

There are a number of instances of malpractice claims and suits where the surgeon has received consent for one operation but has performed, at the same time, another operation which he assumes the patient would have consented to if he had the opportunity. A poor result follows. The patient sees his attorney and the attorney decides to proceed not on the theory of negligence but rather on the theory that the surgeon has performed an unauthorized operation. Liability usually follows. That is why we advise the surgeon that he should not perform the second operation without the consent of the patient in the absence of an emergency.

Is the physician covered under his malpractice policy if he is charged with undue familiarity? Seven of the 22 companies responding to our survey said that they would defend and they would pay the judgment. Eleven companies indicated they would defend if they were convinced the allegations were untrue, but they would not pay any judgment that might result. One company said they would defend unless the doctor was convicted in a criminal prosecution. Another said that they would defend if the doctor denied the allegations but whether they would pay any judgment would depend upon the facts developed during the trial. Another said if the acts constitute a crime, the suit would not be covered. And another stated there would be coverage if the undue familiarity consisted of certain acts considered normal in performing the examination of a female patient.

There have been many claims alleging familiarity on the part of the physician, which are frequently no more than extortion threats. Therefore physicians

Mr. McAuliffe is an attorney for the Law Department of the American Medical Association.

should be continually cautioned to avoid examining female patients unless a third person such as a nurse is present.

Illegal Abortion?

Is there coverage provided under the standard policy when the physician is charged with an illegal abortion?

Only one of the 22 companies interpreted its liability to cover both defense and any judgment. Twelve carriers said they would defend but would not pay any judgment. Seven carriers defend only if they believe the physician has not committed a criminal act but indicated they would not be liable to provide coverage against any judgment that might be rendered. And two companies would neither defend the physician nor pay any judgment inasmuch as a criminal act was alleged and such actions, they said, are not covered by the policy.

In some states non-therapeutic sterilization operations are frequent. Sometimes these operations are performed on the wife, sometimes on the husband. Are physicians generally covered under their medical professional liability policy when they are charged with malpractice stemming from such operations? Eight carriers of 22 interpreted their liability as covering both defense and payment under these conditions. The other companies generally stated they would provide coverage only "if sterilization is not a criminal act."

Is a physician covered under his policy when he is charged with injuries resulting from an attempt to artificially inseminate a patient?

Seven of the 22 carriers stated they would both defend and pay any judgment. Fifteen other respondents stated coverage would depend on such qualifications as "whether artificial insemination is a criminal act or against public policy," or whether "artificial insemination was deemed the rendering of professional service."

The standard professional liability insurance policy expressly excludes claims based on a guarantee of results. What do the carriers do when their insured is charged with guaranteeing a favorable result? Eleven of the 22 carriers would deny coverage, and therefore would neither defend nor pay any judgment. Nine companies indicated they would defend the doctor if he denied the guarantee or if their investigation did not support the allegation, but they would not pay a judgment based on an alleged guarantee of results. The companies, however, would both defend and pay on behalf of a doctor who unsuccessfully denied an alleged guarantee of result.

There have been an increasing number of suits charging reputable physicians with guaranteeing a

good result. Physicians should be cautious about the legal consequences of such an act. A physician must be very careful of his words of encouragement to the patient lest they be construed by the patient and later by the court as a guarantee of a favorable result.

What about the physician who performs a procedure while somewhat under the influence of a drug such as a barbiturate. Will he be covered if he is later sued for malpractice for acts he committed while under the influence of this drug? Four of the 22 carriers said that their insured would not be covered. Two would defend but were uncertain as to whether they would pay any judgment. Three said the degree to which the doctor was under the influence of barbiturates would determine their decision regarding coverage. Thirteen acknowledged coverage as to both defense and payment.

This is important because the standard malpractice policy excludes claims arising out of services rendered while under the influence of intoxicants or narcotics. However most of the carriers indicated they would not interpret this exclusion literally but would apply it against the physician who is a drug addict or who committed malpractice while under the influence of his addiction.

This was followed with a question relating to the doctor who is under the influence of alcohol. Six carriers said they would cover a doctor who had performed an act while under the influence of or who had been affected by alcohol at the time he performed the particular act. The remaining companies said they would be willing to defend the doctor, but expressed either doubt or refusal to pay any judgment.

Is a physician covered who holds a policy which states he does not perform surgery, but who later does perform an appendectomy and a bad result follows, and he is subsequently sued? All 22 of the carriers indicated they would cover the doctor under such circumstances.

Injury to Assistants

The question was asked, "Assume Dr. 'A' while performing an operation accidentally permitted an instrument to slip thereby causing a severe injury to his assistant. Is there coverage?" Seventeen of the 22 carriers said this type of claim would be covered. One company thought that coverage was questionable. One would provide only defense. Three would deny coverage.

It is significant that while the specific language of the professional liability insurance policy is not limited to injuries sustained by patients, a few insurers would apparently read such limitation into the policy.

The usual policy provides coverage for "injury arising out of malpractice, error or mistake in rendering or failing to render the professional services." Do

carriers provide coverage when libel is charged? Is a doctor covered if he gives an employer information which he has obtained concerning the employee during a physical examination? All of the carriers acknowledged coverage with the exception of one which would defend the doctor but would not pay any judgment. Although the standard policy refers to coverage for "injury" arising out of the performance of professional service, there does not seem to be any question that injury includes libel as well as physical injury.

Each carrier was asked if coverage would be provided in the following situation:

Members of the medical staff of "X" hospital determine the admission or expulsion of physicians from the medical staff. Only members of the medical staff are entitled to hospital privileges. Dr. "A," a member of the medical staff, was asked to investigate the surgery performed by Dr. "B." Dr. "A's" report stated that Dr. "B" was incompetent and had performed unnecessary surgery. On the basis of this report Dr. "B" was expelled from the medical staff. He then brought suit against Dr. "A" charging libel.

Eight carriers of the 22 would defend and pay any judgment. Two would defend but would not pay any judgment. Two stated a difference of opinion existed regarding coverage and did not indicate their own position. Ten stated there was no obligation either to defend or to pay.

Complexities of Medicine in Future

Recently there have been a few cases of this nature. It is anticipated there will be similar suits filed in the future as the needs and complexities of modern medi-

cine and surgery require stricter discipline within the self-government of modern hospitals. From the responses to this question, the average physician has no assurance whatsoever as to whether his professional liability insurance will cover him for such activity. But every physician who is a member of such a committee should have some insurance in this situation.

The A.M.A.-A.H.A. Medicolegal Education Committee has considered this problem and made a similar recommendation, namely, that there should be some insurance. However, the committee has not made a recommendation as to whether the necessary protection should be obtained by the individual physician or should be provided by the hospital.

There will always be shades of difference among insurance carriers in the interpretation they place on standard professional policy provisions, but the standard medical professional liability policy appears not to reflect present-day conditions. It is antiquated. It is not surprising to find a widespread difference in opinion among the carriers as to whether there is coverage. Today it is not the charlatan or the marginal physician who is being sued for malpractice; it is the reputable physician. Hence the medical professional liability insurance policy should be re-examined and clarified in the light of modern medical practices. Representatives of medical societies should answer the physician's question concerning the extent of his coverage, and alert him to the exclusions and ambiguities which exist in his policy. At the same time insurance carriers should be encouraged to bring their policies up to date so that the physician will have the protection which he wants, which he needs, and which he thought he had.

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere will be subsequently authorized in the discretion of the Editor.

Correspondence: Address all correspondence relating to publication of scientific papers to the Managing Editor.

Manuscript: Type double spaced, on white paper, 8½ by 11, with one-inch margins at the top, bottom, and right, and 1½ inches on the left. Submit the original. Call drugs by their generic names. The trade names can be added, in parenthesis, if they are considered important. Keep one copy of the paper.

Footnotes and References: Use the style of the *Quarterly Cumulative Index Medicus* published by the American Medical Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

4. Doe, J. E., What I Know About It, J. Kans. M. S.
54:717-719 (Dec.) 1954.

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Reprints: An order slip for reprints with a table covering cost will be sent with the galley proof to each contributor.

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Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.

The President's Message

DEAR DOCTOR:

May I call the attention of all members of the Society to the articles appearing in the JOURNAL OF THE KANSAS MEDICAL SOCIETY regarding the legal problems which affect all of us, particularly since the recent decision of the Kansas Supreme Court. I wish to take this opportunity to thank Doctor Clark and the Editorial Board for permitting us to use this issue of the JOURNAL to carry, what we believe to be, an important message to the membership of the Society. Unfortunately the decision handed down by the Supreme Court makes it impossible to interpret its meaning and the specificity of its intent. Hence, the practice of medicine has become more hazardous and deserves attention by the Society.

The Defense Committee of the Society has been reactivated by the Council with appointment of new members to investigate this problem. They are doing research in association with Mr. Kirke Dale, the attorney for the Kansas Medical Society, hoping to make suggestions that may be used at the discretion of the county societies for their use as befits their local conditions.

I am not trying to overemphasize the importance of this information, but we felt it should be printed in the JOURNAL. The members must have the privilege of familiarizing themselves with the situation if they so desire.

I wish to take this opportunity to say I hope everyone had the happiest of Christmases and that the New Year will afford all members the things they most ardently cherish and desire.

May the New Year also present to the Medical Society our opportunity to further the care of the aging in a free enterprise system.



Yours very truly,

A stylized, cursive handwritten signature in dark ink. The signature appears to read "S. A. Lightman".

President

Consent to Operation

PATIENT: Age

Date: Time A.M. P.M. Place:

1. I hereby authorize Dr., and whomever he may designate as his assistants, to perform upon the
(State name of patient or "myself")

following operation:; and, if any unforeseen
(State nature of procedure to be performed)
condition arises that was not recognized before and which calls for procedures in addition to those originally contemplated, I further request, authorize, and direct him to do whatever he deems advisable.

2. I have been completely informed as to and understand the nature and purpose of the operation; the probable consequences thereof; the possible alternative methods of treatment, and the risks and hazards involved. The possibility of complications has been fully explained and are understood by me, and I acknowledge that no guarantee or assurance has been made as to the results obtained, and I have knowingly and voluntarily consented to any and all surgical procedures which may arise.

3. I consent to the administration of anesthesia by or under the direction of Dr. and the use of such of the anesthetics as he may deem advisable, with the exception of
(State "none," "spinal anesthesia," etc.)

4. I consent to the disposal by the hospital authorities of any tissues or parts which may be removed.

5. I certify that I have read and fully understand this Consent; that the explanations referred to were actually made; that all blanks requiring insertion or completion were filled in and the facts inserted in my presence and that I fully understand same.

.....
Patient's Signature

.....
Signature of Patient's Husband or Wife

.....
Signature of person authorized to
consent for minor or incompetent patient

.....
Relationship to Patient

WITNESSES TO SIGNATURES:

.....
Address:

.....
Address:

A signed consent form in itself is of assistance to the extent that it is understood and agreed upon by the patient. No single document of this nature can meet all possible conditions nor will any suggested form appear satisfactory to each physician.

The example presented here was prepared through the combined efforts of the Legal Department of the American Medical Association and the Defense Board of the Kansas Medical Society, with valuable suggestions from several attorneys in Kansas. It is offered as a guide which with the substitution of a few words can be altered to apply to all fields of practice. It is hoped the physician may find this useful in the preparation of a form he may wish to use in his private practice.



Boiling a Frog

The American people have almost always shown a stubborn disenchantment with all the delusive promises of Socialistic doctrines or spokesmen. As a nation we grew up under the heritage of a set of ideals which clustered about the memories of generations which carved a civilization out of a wilderness with nothing more than an axe, a gun and a grimly determined self reliance.

That is scarcely the type of temperamental background which produces a yearning to lean upon the always doubtful support of somebody else for one's own necessities, comforts and overall destiny. Hence, to tag any measure as openly, brazenly and unmistakably socialistic has nearly always been all that was necessary to condemn it to decisive defeat at the hands of the American people.

For, the essence of all socialistic philosophies is that the state—meaning the government in general—should take over the responsibilities which belong to the individual in the vast perspective of history, unless the state itself is to become worm-eaten clear down through its foundations by the increasingly voracious demands of consumers which the producers either cannot or will not continue to meet.

And the long, sometimes wearisome, record of history, from the most ancient days of Egypt or Sumeria to the 1960 developments in Russia, indicate pretty unmistakably that when the political functionaries of the state arrogate to themselves the power to tell the average family what and how much it shall eat, in what kind of a shelter it shall live, and how much money it shall be free to save for emergencies or for old age, nothing but eventual unhappiness and frustration can possibly appear in the end. Yet all of those, and many more results of

control from above, are the avowed aims of Socialistic legislation, taxation and production policies.

Nevertheless, despite all that ingrained suspicion of the methods and aims of organized socialism inherent in the American tradition, the cold fact remains that much of the socialistic program—although under names which conceal its true origin and identity—has been enacted into law. One of the most pathetic complaints of the old line Socialists in the United States is that politicians of the other parties have robbed them of their campaign ammunition over the past two generations—and won impressive election victories with the stolen weapons.

In the battle for votes candidates are feverishly seeking office all the way from counties to the national scene by the stratagem of urging further schemes to have some level of government levy more and still more taxes, and then buy for the citizens things they could have bought for themselves if the unnecessary part of the tax burden had not drained their pockets dry. That is, they could have bought them—if they had wanted them! For, it must never be lost to sight that at the very foundation of all socialist type thinking is the firm belief that some government official always knows what is good for the rest of the citizenship far better than it does itself.

Naturally, all those politicians who are today seductively peddling the bait of Socialism would shriek to high heaven that you were terribly unfair if you tied a Socialist label on them.

Maybe you would at that! For 50 years other politicians have been getting away with foisting off upon us the kernel of socialism while reassuring us sweetly that it is something entirely different—and a sizeable majority of us has been acting for all the world as though we were wide-eyed innocents who believed every word they said.

The ultimate result will be just as expensive and as unpleasant as though we had bought it directly from

Originally read as a commentary by Olaf Soward, at radio station WIBW, Topeka, on October 20, 1960. Though reference to the election campaign is now out of date, the rest of the presentation is so appropriate it seemed worthy of repetition—Ed.

the pages of Karl Marx. But a considerable number of us says rather plainly and cynically that we can have a high old time with the first stages of Socialism—and it will be up to our children to cope with the bills for it when they come due, as they inevitably will.

The whole thing sounds discouragingly like the chapter in biology about the frog which asserts as a laboratory fact that you can boil it to death—if you will only be gradual enough about it.

Quite naturally, the experiment was never performed before any class that I ever heard of—but the book said that the nervous system of at least some varieties of the frog is so deficient in the power to react to slow temperature changes that you can place one of the critters in a vessel of water and by heating it so slowly that it only rises a few degrees centigrade every 15 minutes or so, the frog will sit there in stupid contentment until the actual life has been boiled right out of it.

There is a variety of politicians—which, unfortunately, is entirely too numerous—that cares no more about the ultimate welfare of the millions of his fellow men, women and children than does the biological research specialist about the life of one frog. The only difference is that the laboratory experimenter is seeking to establish the truth or falsity of a scientific postulate: the politician, in probably nine cases out of ten, is trying to purchase a spurious and tawdry popularity with other peoples' painfully earned money.

The only way that we, as a nation, can avoid the deadly slow boil of Socialism is to learn to recognize the process in its first stages, and to turn off the heat before we have lost the power to control the political temperature. And the one key to that alertness of mind is to develop a constant and healthy suspicion of any and every proposal which would involve the government more deeply in the daily life of the private citizen.

That is truly the American way—to use a phrase which is on almost every tongue these days. For England, before 1776, ran the 13 American colonies in exactly the way the government interventionist would have us adopt today. By subsidies and red tape—by capricious taxation and strangling, unrealistic regulation—the Lords of Trade in London were supremely positive they knew better how to manage the lives of the colonists in far off America than did the men and women from Boston to Savannah who were actually living those lives. It was against that suffocating paternalism—Socialism, if you prefer a modern term—the colonists rebelled, rather than against any physical cruelties.

And, if we permit ourselves to be duped into that

same slavish dependence on the politicians of our own government, we shall be doing so just when the avowed Socialists of the world are beginning to admit that they have been chasing a pot of fool's gold at the end of a madman's rainbow!

In West Germany, the very home of the modern Socialist movement, where the power of that party in the 80's of the last century was enough to make the Iron Chancellor Bismarck adopt the so-called "welfare state," the Socialist party has all but disintegrated. Only the restoration of a large measure of free enterprise has enabled that defeated portion of the former nation to astonish the world with its recovery from the fantastic destruction of the second world war.

In England the Labor party—which has been spearheading Socialism for 50 years and more—has just publicly exposed a split down its middle brought on by the opponents of further socialization of British industry within its own ranks. Three stunning defeats in a row at the hands of the English voters may have had something to do with it.

France—another spawning ground for all the subtle absurdities of Socialism—is once again in the grip of a virtual dictatorship, imposed in a desperate effort to avert complete collapse following the economic and political spree which raged after the last war.

Russia stands as a constant reminder that the logical end of all socialistic adventures is a tyranny so oppressive that the utmost extremes in brutality become commonplace in a ferocious effort to prevent disillusioned and resentful peoples from upsetting the apple cart of socialist politicians.

Those are object lessons before our eyes today. We can learn from them vicariously, without having to suffer the pains of ultimate experience.

What Consent Form Should You Use

To be legally valid, the consent given to a procedure must be an intelligent or informed consent with an understanding of what is to be done and the risks involved.

Professor Allan H. McCoid has expressed the opinion in a law review article:

If the sole basis or reason for bringing an action is . . . disappointment as to the outcome of the operation, there is no real loss in denying recovery. On the other hand, serious objection may be raised to denying recovery where the reason for bringing

McCoid, *A Reappraisal of Liability for Unauthorized Medical Treatment*, 41 Minn. L. Rev. 381, 427 (1957).

the action is failure of communication by doctor to patient. The proper solution of this problem, in the opinion of the author, is to recognize that the doctor owes a duty to his patient to make reasonable disclosure of all significant facts, i.e., the nature of the infirmity (so far as reasonably possible), the nature of the operation and some of the more probable consequences and difficulties inherent in the proposed operation. It may be said that a doctor who fails to perform this duty is guilty of malpractice.

Professor McCoid's article was cited in support of the rule requiring an informed consent in *Natanson v. Kline*, 186 Kan. 393, 350 P. 2d 1093 (1960). The plaintiff sued a radiologist alleging she suffered injuries as a result of cobalt irradiation therapy and that the hazards had not been explained to her prior to treatment. The jury found in favor of the radiologist on the issue of alleged negligent treatment. The lower court refused to instruct the jury on the question of "informed consent." In ordering that the case should be retried, the Kansas Supreme Court stated:

In our opinion the proper rule of law to determine whether a patient has given an intelligent consent to a proposed form of treatment by a physician . . . compels disclosure by the physician in order to assure that an informed consent of the patient is obtained. The duty of the physician to disclose, however, is limited to those disclosures which a reasonable medical practitioner would make under the same or similar circumstances. How the physician may best discharge his obligation to the patient in this difficult situation involves primarily a question of medical judgment. So long as the disclosure is sufficient to assure an informed consent, the physician's choice of plausible courses should not be called into question if it appears, all circumstances considered, that the physician was motivated only by the patient's best therapeutic interests and he proceeded as competent medical men would have done in a similar situation.

In *Salgo v. Leland Stanford, Etc., Board of Trustees*, 154 Cal. App. 2d 560, 578, 317 P. 2d 170, 181 (1957), the court said:

. . . A physician violates his duty to his patient and subjects himself to liability if he withholds any facts which are necessary to form the basis of an intelligent consent by the patient to the proposed treatment. Likewise the physician may not minimize the known dangers of a procedure or operation in order to induce his patient's consent. At the same time, the physician must place the welfare of his patient above all else and this very fact places him in a position in which he sometimes must choose between two alternative courses

of action. One is to explain to the patient every risk attendant upon any surgical procedure or operation, no matter how remote; this may well result in alarming a patient who is already unduly apprehensive and who may as a result refuse to undertake surgery in which there is in fact minimal risk; it may also result in actually increasing the risks by reason of the physiological results of the apprehension itself. The other is to recognize that each patient presents a separate problem, that the patient's mental and emotional condition is important and in certain cases may be crucial, and that in discussing the element of risk a certain amount of discretion must be employed consistent with the full disclosure of facts necessary to an informed consent. . . .

The holdings in the recent cases involving alleged lack of consent may make the physician a frequent target for malpractice claims whenever a bad result occurs. Since the gist of the action does not involve negligent treatment but negligence in failing to explain the hazards to the patient, the claim of alleged lack of informed consent may become attractive to those attorneys who seek new "theories" of liability against physicians. Under the circumstances, the physician must be prepared to prove in court that he explained the risks involved to the patient whenever surgical, therapeutic or diagnostic procedures involve more than the hazards which the patient might normally expect. The physician's best protection is to inform the patient fully regarding any unusual risks that may be involved and to insist upon a consent in writing in which the patient acknowledges this explanation.

It is of course perfectly clear, the patient may not legally consent to all things. For example, he may not legally consent to an illegal procedure such as a criminal abortion. His consent while irrational or confused to a point where he would deny responsibility later in a court, would provide small, if any, protection to the physician. Nor is his consent valid unless the proposed procedure has been made sufficiently clear to him that it is an informed consent.

Many attempts have been made to prepare consent forms that might be generally used. Sufficient technical problems arise in each discussion of this kind that nothing yet proposed completely satisfies all persons in any group. The Defense Board of the Kansas Medical Society, therefore, respectfully advises the regular use of a signed consent but leaves to each physician the preparation of this form to suit his specific needs.

Some physicians regularly rely upon oral consent. This creates an additional risk to the physician if the patient at a later date finds it difficult to remember having consented to a procedure. The court, under

such circumstances, is required to judge between the conflicting assertions of the physician and his patient as to which statement is true.

Some physicians use a universal consent form which states in effect that the patient authorizes the physician to perform whatever service he believes to be necessary. This will be effective only to such point where a patient might later disagree with the physician as to what treatment was necessary. In case such disagreement reaches the court, a broad written consent of the type described above will add one further issue to be litigated which would not be required where the written and signed consent is more specific.

The Defense Board is of the opinion that a consent agreement in writing should be obtained by any physician before any major or potentially hazardous procedure is begun. In general terms, the consent form should provide the following.

It should clearly state the nature and extent of the care that is authorized and, if practical, contain a provision permitting additional procedures such as the removal of an appendix at the time of a cholecystectomy. But, here again, the broader the consent, the less meaningful it becomes.

The consent form should contain a statement permitting the patient to declare himself to be of sound mind, capable of judgment and that he makes this decision of his own election. If convenient, the agreement of another member of the family, such as the spouse, might be helpful. In the case of a minor it is necessary, of course, that the parents' agreement be obtained or, that being impossible, the consent should be signed by some legal authority, such as a guardian.

The consent form should contain a statement that the patient is sufficiently informed of the nature of the procedure to be done to be able to give an informed consent. Where unusual risks are involved, he should state such risks have been explained and he, the patient, still wishes to have the treatment performed.

Consent to treatment does not limit itself to surgical procedures because equal responsibility can be involved in many professional services. Therefore, the physician should judge for himself whether he believes he has adequate authority for what he is about to do before he commences the work. In the law there is nothing requiring a written consent nor will this provide additional security over consent that is oral or implied, except in the obvious advantage of a written word over the dependence on memory. The Defense Board, therefore, cannot do other than to advise each physician to assure himself he has per-

mission of the patient to perform whatever he attempts to do before the work is begun.

The Statute of Limitations generally limits liability to two years following the exposure of risk but it would be prudent to retain his records for a longer period. It is understood, of course, that the Statute of Limitations does not apply in the case of a minor until majority has been reached.

Legally, a physician may depend upon the consent obtained by a hospital where the principal service has been rendered in the hospital. It is, however, the physician's own personal record which he has obtained and has preserved as a part of the history of his services for the patient that will be his best aid in resolving any possible future misunderstandings. An adequate personal history maintained by the physician in his own practice may prove to be the most effective deterrent of an unpleasant legal procedure.

Dallas Whaley Leaves Journal

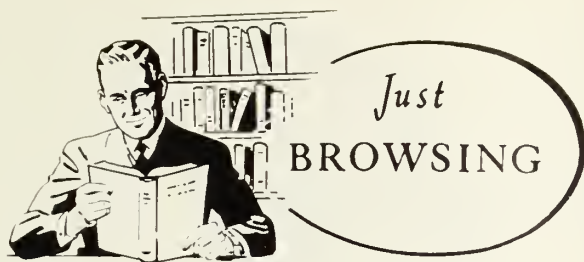
The Kansas Medical Society regrets that Mr. Whaley, who for the past two years has served the Society as managing editor of the JOURNAL and also as assistant executive secretary, left this employment on January 1, 1961. His departure represents to the Society and everyone who has had contact with him a loss and they will be sorry to have him go.

It is with great pleasure, however, that the Society welcomes him to his new position. He left the Kansas Medical Society to become the executive secretary of the Sedgwick County Medical Society in Wichita, a position left vacant through the appointment of Mr. H. Martin Baker as a field representative for the American Medical Association.

In that position Mr. Whaley will continue to serve the Medical Profession of this state and through that office he will continue the close co-operation which has always existed between the Sedgwick County Medical Society and the Kansas Medical Society.

Therefore, while the Editorial Board and the Society are sorry to have Mr. Whaley leave, we take more than a little pride in the fact that the 300 members in Wichita have selected him to direct their executive office. Members of this Society wish him well and look forward to continuation of many fine services to the Practice of Medicine in his new position.

Small children have many more perceptions than they have terms to translate them; their vision is at any moment much richer, their apprehension even constantly stronger, than their prompt, their at all producible, vocabulary.—*Henry James*



One of the most impressive features of the medical giants of the past has been the ability to make careful clinical observations and recognize the significance of their observations, in the absence of many features which we consider today to be "essential" to accurate diagnostic study. One of the great clinicians and teachers of the last century is certainly Sir William Osler, whose teachings and writings are indelibly written in medical progress. One of many examples of his observations is contained in a lecture given to medical students at Johns Hopkins Hospital (The Ball-Valve Gall-Stone in the Common Duct) in 1897. Only fragments are quoted, but much of the remainder can be imagined.

"... in a lecture which I published in 1881, on Some of the Effects of Chronic Impaction of Gall-Stones I remarked 'that a gall-stone may remain permanently lodged in the pars intestinalis [of the common bile duct] and yet not be impacted. In such instances it may still permit the passage of bile past it, or it may act as a ball-valve, only permitting of the flow when the distension behind has reached a certain point.' In several cases the stone in the diverticulum of Vater was so placed that it could be moved up and down to act as a sort of ball-valve; and clinically I had had an opportunity of studying two cases in which the remarkable train of symptoms seemed best explained by this ball-valve action of a stone in the common duct. . . . Subsequently, . . . I called attention especially to the importance of recognising a group of cases of obstruction of the common duct characterised by the following symptoms: 'First, jaundice of varying intensity, deepening after each paroxysm, and which may persist for months or even for years; second, ague-like paroxysms characterised by chills, fever, and sweating, after which the jaundice usually becomes more intense; and third, at the time of the paroxysms pains in the region of the liver, with gastric disturbance.' In this paper I considered at length the question of the hepatic intermittent fever which the French physicians, particularly Charcot, had so carefully described, and emphasised the following points: that recovery might follow even, as shown by the cases, after duration of the chills and fever and jaundice for several years; that this condition could be differentiated from suppurative cholangitis; and that the symptoms were probably caused by the ball-valve action of the stone. I added the following statement: 'In all of these cases the obstruction is not complete, as shown by the presence of bile in the stools for long periods at a time. The association of the chills and fever with intensification of the jaundice must be more than accidental. The two must be correlated in some way, in all probability through a transient impaction of the stone in the duct. . . .'"

He discussed the outcome in nine cases which he had seen. "Recovery followed spontaneously in five cases (in one after an indefinite period of years, in one after three years, and in one after two and a half years, and in two cases after eight and ten months respectively), two died from cholaemia, one case was operated on and died, and one was lost sight of. The dangers are suppurative cholangitis, perforation of the duct, diffuse hepatitis, and remotely the development of cancer.

"What shall we advise [for the patient presented at the clinic]? . . . All sorts of measures have been employed and the Pharmacopoeia has been exhausted. The two remedies which are in vogue at present—phosphate of soda in large doses and olive oil—have been tried in vain. The medicinal treatment of gall-stones is a chapter in our therapeutics the leaves of which are best turned very rapidly. The man who believes he can dissolve gall-stones will probably tell you that he can abort an attack of pneumonia and that he can cure locomotor ataxia. So soon as they give serious trouble their removal by operation is the only rational method of treatment. . . . A knowledge of the significance of the group of symptoms to which I have called your attention will suggest to surgeons the advisability of seeking the obstruction in the terminal portion of the duct." (—O.R.C.)



The Business Side of Medicine

Municipal Bonds

FLOYD F. WEHRENBURG, *Kansas City, Missouri*

There is an air of mystery and reservation about municipal bonds for the average investor in spite of their tax advantage and outstanding safety. Probably this is due to lack of knowledge and to the fact that municipal bonds are not publicized and promoted to the degree other media of investments are.

Ordinarily we consider a municipality to be a city, town, or village. Among investors, however, it is understood that municipal bonds include obligations of states, territories, counties, possessions of the United States, and state and local instrumentalities such as housing authorities, commissions, and utility districts. All municipal bonds in these categories enjoy federal tax immunity.

Four Types

The four major types of municipal bonds are general obligations, revenue, limited tax, and federal or state subsidized bonds. Let's consider each of these further.

General Obligation Bonds are secured by all the assets of the issuing authority. They are generally used to finance roads, schools, parks and community facilities and are considered to be the "Blue Chips" of municipal bonds.

Revenue Bonds are secured by the project for which they are issued and depend upon the income from that project to pay the principal and interest of the bonds. The primary users of these bonds are toll roads

and bridges. They are attractive due to their relatively high rate of return.

Limited Tax Bonds are obligations for which the full taxing power of the issuing authority is not pledged. A single tax or a series of taxes is pledged to repay the bond. Examples of this type of bond are the various veterans' bonus bonds issued during the past few years and secured by various special taxes, such as additional property tax levies and sales tax levies.

State and Federal Subsidy Bonds are generally regional or local project bonds with a certain degree of state or federal subsidy or aid involved, such as Local Housing Authority Bonds issued by the Local Housing Authorities but secured by federal funds.

Investors Choice

Since municipal bonds are now usually issued to mature in serial installments from one to 25 years, the investor is given a choice. This overcomes one of the former major objections to municipals, that is, tying up of investment funds over a long period. To overcome this, an investor may buy bonds to mature periodically or in any other manner he chooses.

Many municipals have recently been priced to yield between $3\frac{1}{2}$ per cent and four per cent. Needless to say, this is an attractive yield when the tax exemption is considered. It would take a taxable yield of six per cent to 10 per cent, depending upon your tax bracket, to equal this tax-free yield. For these reasons, municipal bonds offer an excellent medium for a portion of your fixed dollar commitments.

Mr. Wehrenberg is Missouri-Kansas Manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.



Blue Shield

New Television Series Sponsored by Blue Cross-Blue Shield Is Part of 1961 Educational Program

Actual surgical operations, including some of the most advanced medical techniques, will be shown in a new hour-long television series throughout the state during 1961. Kansas Blue Cross-Blue Shield proudly announces that it is the official sponsor of this highly technical and informational show in Kansas. This is a part of the organization's stepped-up Education Program for 1961.

The monthly program will be presented on two direct television stations and two satellite stations, beginning in January.

The first program will be presented over KAKE-TV, Wichita, on Wednesday, January 18, at 9 p.m., and over WIBW-TV, Topeka, Monday, January 23, at 7 p.m. The show on KAKE-TV will also be seen on KAYS-TV, Hays, and KTVC-TV, Ensign. Title of the January show will be "Anesthesia." Other dates for the shows during the first four months are as follows:

| | | | |
|--------|--------------------------------|---------|-----------------------------|
| FEB.: | "Corneal Transplant" | KAKE-TV | |
| | | KAYS-TV | Sun., Feb. 12, 8:30 p.m. |
| | | KTVC-TV | |
| | | WIBW-TV | Wed., Feb. 15, 7:30 p.m. |
| MARCH: | "Brain Surgery" | KAKE-TV | |
| | | KAYS-TV | Mon., March 13, 7:30 p.m. |
| | | KTVC-TV | |
| | | WIBW-TV | Sat., March 18, 7:30 p.m. |
| APRIL: | "A Child Goes to the Hospital" | KAKE-TV | |
| | | KAYS-TV | Fri., April 21, 6 p.m. |
| | | KTVC-TV | |
| | | WIBW-TV | Thurs., April 27, 6:30 p.m. |

Includes Many Procedures

Other programs to be presented include an artery reconstruction operation where the surgeon removes an obstruction; a corneal transplant where a donor's eye from an Eye Bank is used to replace the patient's scarred cornea; and brain surgery on a victim suffering from Parkinson's Disease.

Show Actual Procedures

"Medicine 1961" is produced for Screen Gems by Lawrence Williams in association with the San Francisco Medical Society. Professional performers are *never* used; every person appearing in the shows is an actual doctor, nurse, scientist or patient. The procedures to be shown were actually taking place as the shows were filmed.

In addition to the backing and support of the San Francisco Medical Society, producers had the complete cooperation of leading medical centers, including Stanford University and the University of California, where the operations were performed.

Williams previously has produced such films as "Open-Heart Surgery," the program which won the Sylvania Award as the best local public service program; "Doctors News Conference"; "Alcoholic City," a one-hour special, and "A Life in Your Hands."

A Part of 1961 Program

This series of hour-long television programs presented as a public service to the television viewers of Kansas is a part of Blue Cross-Blue Shield's 1961 promotional and educational program. Monthly ad-

(Continued on page 30)

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone: CE 5-0011, Ex. 297

Recent Acquisitions

- Ackerman, L. Surgical pathology. Mosby, 1957.
Anderson, W. A. Pathology. Mosby, 1957.
Anson, B. J. Callander's surgical anatomy. Saunders, 1958.
Apple, D. Sociological studies of health and sickness. McGraw-Hill, 1959.
Ariel, I. M. Cancer and allied diseases of infancy and childhood. Little, Brown, 1960.
Asimov, I. The living river. Abelard Schuman, 1959.
Beeson, P. Yearbook of medicine. Year Book Pub., 1960.
Boesch, M. The long search for the truth about cancer. Putnam, 1960.
Boyd, W. Pathology for the surgeon. Saunders, 1956.
Ciba Foundation. Human pituitary hormones. Little, Brown, 1960.
Ciba Foundation. Congenital malformations. Little, Brown, 1960.
Ciba Foundation. Cellular aspects of immunity. Little, Brown, 1960.
Chao, D. Convulsive disorders of children. Saunders, 1959.
Clark, M. Medicine today: a report of a decade of progress. Funk & Wagnell, 1960.
Clifton, C. E. Annual review of microbiology. Annual Reviews, 1960.
Coley, Bradley L. Neoplasms of bone. Hoeber, 1960.
Dock, W. Advances in internal medicine. Year Book Pub., 1960.
Ford, F. Diseases of the nervous system in infancy and childhood. Thomas, 1960.
Glenn, F. L. Surgery in the aged. Blakiston, 1960.
Gould, S. E. Pathology of the heart. Thomas, 1960.
Greenhill, J. P. Yearbook of obstetrics and gynecology. Year Book Pub., 1960.
Hall, B. A psychiatrist's world. The selected papers of Karl Menninger. Viking Press, 1959.
Hickman, C. P. Health for college students. Prentice-Hall, 1959.
Hilleboe, H. E. Preventive medicine. Saunders, 1959.
Johnson, W. R. Science and medicine of exercise and sports. Harper, 1960.
Joslin, E. P. Diabetic manual. Lea & Febiger, 1959.
Karsner, H. T. Human pathology. Lippincott, 1955.
Levine, S. Advances in pediatrics. Year Book Pub., 1960.
Parker, E. The seven ages of woman. Johns Hopkins, 1960.
Schneider, E. H. Music therapy. National Assn. Music Therapy, Inc., 1959.
Shiveley, W. D. Sea within: story of our body fluids. Lippincott, 1960.
Shultz, G. D. Letters to Jane. Lippincott, 1960.
Slaughter, S. S. The mentally retarded child and his parents. Harper, 1960.
Slobody, L. Survey of clinical pediatrics. McGraw, 1959.
U. S. Dept. H. E. & W. Central nervous system and behavior. 1959.
Watson, B. B. Delayed effects of whole body radiation. Johns Hopkins University, 1960.

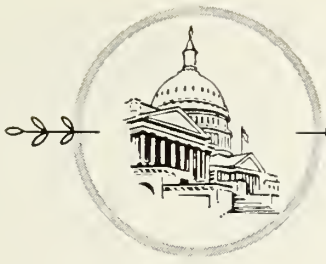
Blue Shield

(Continued from page 29)

vertisements will appear in all Kansas newspapers during the year, describing the advantages and benefits of Kansas Blue Cross-Blue Shield. In addition, it is expected that several news and weather broadcasts will also be scheduled throughout the year.

"We want more Kansans than ever before to know about Kansas Blue Cross-Blue Shield. We want them to learn through the printed and spoken word how they can enroll, and what the advantages of the program are." This is the statement of Blue Cross and Blue Shield spokesmen, as they gave their approval of the 1961 educational and promotional program. "We believe this television series is the finest and most authentic ever produced, and we are eager for all Kansans to learn more about modern medical and surgical techniques through this outstanding program."

Many Blue Cross-Blue Shield Plans throughout the country are currently sponsoring this dramatic TV series in their areas.



Washington HIGHLIGHTS

This summary of Washington news is prepared by the A.M.A. Washington Office for distribution to state medical journals.

A scholarship and loan program for medical students, the status of foreign medical graduates, an A.M.A. membership dues increase, the expansion of voluntary health insurance, health care for the aged, and new developments in polio vaccine were among the major subjects acted upon at the American Medical Association's Fourteenth Clinical Meeting held in Washington, D. C., November 28-December 1.

G. P. of the Year

Named as 1960 General Practitioner of the Year was 44-year-old Dr. James T. Cook of Marianna, Florida, who was selected for his dedication to both medical practice and service to the community. Dr. Cook is the 14th recipient of the award.

Speaking at the Monday opening session, Dr. E. Vincent Askey of Los Angeles, A.M.A. President, called upon the delegates to support not only existing A.M.A. programs but also expansion of new programs necessary to meet the challenges of society. Dr. Askey assured the new administration in Washington of cooperation whenever and wherever possible but emphasized that the A.M.A. will not change its policies merely for the sake of conformity.

Total registration reached 8,170, made up of 3,940 physicians and 4,239 guests.

Scholarship and Loan Program

The House of Delegates approved a scholarship and loan program proposed by the Special Study Committee of the Council on Medical Education and Hospitals, and also urged that there shall be local participation in the program at the state and county level. In commenting on the two-part program, the House approved the following statement by the Reference Committee:

"This proposed program will provide concrete evidence of the American Medical Association's sincere desire to attract increasing numbers of well qualified young people to enlarge the ranks of our profession. Your Reference Committee recognizes that

the program is wisely designed to allow for its enlargement through the support of individual physicians and other groups. Your reference committee was impressed with the enthusiastic support of this proposal indicated during the course of the discussion. There was indicated a desire that in the final formulation of the administrative details of this program, provision be made for widespread participation by individual physicians as well as county and state medical societies. The program will clearly assist in securing highly talented individuals whose ability and leadership in all areas of medicine will be fostered and at the same time will bring needed financial assistance on a broad basis to medical students under a system in keeping with this Association's belief in individual responsibility."

Foreign Medical School Graduates

Meeting the problem of foreign medical graduates, the House of Delegates adopted a report which included the following statement:

"In order that those foreign physicians who have not yet been certified by the Educational Council for Foreign Medical Graduates might be given further opportunity to enhance their medical education, hospitals would be encouraged to develop special educational programs. Such programs must be of educational worth to the foreign graduate and must divorce him from any responsibility for patient care. Foreign physicians may participate in these programs until June 30, 1961, with approval of the Department of State so that their exchange visa will not be withdrawn before that time. This will also allow the non-certified foreign physician the opportunity to take the April, 1961, Educational Council for Foreign Medical Graduates examination."

A.M.A. Dues Increase

The House approved a Board of Trustee report which announced that a dues increase would be recommended at the annual meeting in June 1961. The report indicated that the amount would be not less

than \$10 and not more than \$25 to be effective January 1, 1962. The Reference Committee asked the Board to consider an increase in the annual dues of \$20.00, to be implemented over a period of two years: \$10.00 on January 1, 1962, and \$10.00 additional on January 1, 1963.

The House suggested that these funds be used to inaugurate or expand a number of programs including:

1. Financial assistance to medical students.
2. Continuing education for practicing physicians.
3. Health advice to the lay public.
4. Medical research.
5. The expansion by the Communications Division of its program of faithfully portraying the image of the American Medical Association.

It is important, the House emphasized, that the Board of Trustees report recommending a dues increase be transmitted in essence to the grass roots level.

Voluntary Health Insurance

In place of a Board of Trustees report and three resolutions, the House adopted the following substitute resolutions:

"WHEREAS, It has been widely recognized that voluntary health insurance is the primary alternative to a compulsory governmental program; and

"WHEREAS, The public has shown its confidence in this voluntary system; and

"WHEREAS, Current social, political and economic developments compel a new and revitalized effort to make voluntary health insurance successful; and

"WHEREAS, The American Medical Association has consistently pledged itself to make available the highest type of medical care; therefore be it

"Resolved, That the House of Delegates direct the Board of Trustees and the Council on Medical Service to assume immediately the leadership in consolidating the efforts of the American Medical Association with those of the National Association of Blue Shield Plans, the American Hospital Association and the Blue Cross Association into maximum development of the voluntary, non-profit prepayment concept to provide health care for the American people; and be it further

"Resolved, That similar leadership be undertaken to coordinate the efforts of private insurance carriers through conferences with their national organizations; and be it further

"Resolved, That, where feasible, efforts be made to cooperate with representatives of other types of medical care plans, other professional groups, and representatives of industry, labor and the public at large."

Health Care for the Aged

The House reaffirmed the Association's support of the Kerr-Mills Bill, which was passed last summer, and its opposition to any legislation involving the use of the OASDI mechanism for medical aid to the aged. The delegates also urged all state and local medical societies to cooperate with the appropriate state officials and provide leadership in implementing the provisions of the Kerr-Mills Bill.

In connection with health care for the aged, the House suggested further experimentation in home care programs, homemaker services and visiting nurse services. The delegates also recommended an increased emphasis at all levels of medical education on the new challenges being presented to physicians in the health care of older persons.

Polio Vaccine

The House agreed with a Board of Trustees report which said:

"In view of the fact that oral polio vaccine will not be generally available in sufficient quantity in 1961 for any large scale immunizing effort, the Board of Trustees of the A.M.A. strongly recommends that the medical profession encourage the widest possible use of the Salk vaccine for the prevention of poliomyelitis. The Salk vaccine has been proved to be effective and since there are still many segments of the population not immunized against poliomyelitis every effort should be made to encourage the general public to take advantage of the Salk vaccine without delay."

The Board report was amended to suggest that a proper committee be established by the A.M.A. to study the problems involved in administration of the new oral polio vaccine and to establish guides for physicians to follow when they are approached by various groups and asked for their support in administering oral polio vaccine.

Miscellaneous Actions

In considering a wide variety of resolutions and annual and supplementary reports, the House also:

Approved continuing study and periodic re-evaluation of the trend toward locating *physicians' offices* in or adjacent to hospitals;

Directed the Committee on Medical Care for Industrial Workers to carry out its duties as previously instructed and to prepare guides for physician relationships with *medical care plans* in conformity with the clear policies already laid down by the House of Delegates;

Approved a set of guides relating to drug expenditures for *welfare recipients*;

(Continued on page 35)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

MOVE TO AVERT MEDICAL CARE CRISIS

That bold steps are called for to avert a serious shortage of medical personnel in another decade is the finding of two competent study groups. The first is the Consultant Group on Medical Education advising the U. S. Surgeon General. The second, named by the Senate Appropriations Committee, is the Committee of Consultants on Medical Research.

Both political parties showed awareness of the coming shortage in their political platforms. The Democratic platform calls for federal aid to construct and modernize schools of medicine, dentistry, nursing and public health. The Republican pledge amounts to the same thing.

The Senate Committee's consultants have advised a billion dollar program of new medical and dental facilities during the next ten to fifteen years. The Surgeon General's group believes we will have to increase medical school graduates from 7,000 to 11,000 per year to keep up with population.

These study groups recommend "aggressive action" to get more facilities and to provide the loans and scholarships that will enable students to get a medical education.

There is little doubt that there will be action. It is well that the blueprints of need are drawn well ahead of the time when it is estimated that shortages would create a national crisis in medical care.—*Wichita Evening Eagle and Beacon*, November 15, 1960.

AMA PROCLAIMS ALL-OUT FIGHT

In announcing an all-out fight against the platform pledge of President-elect Kennedy to tie medical care for the aged in with the Social Security system, the

American Medical Association announces it does not intend to negotiate with the Kennedy Administration on the chance it may get some concessions.

That is the surest way to defeat, spokesmen said. "They (the Kennedy leaders) are going to fight with everything and I tell you, gentlemen, we have to fight with every resource, right down the line," said one of the AMA officials.

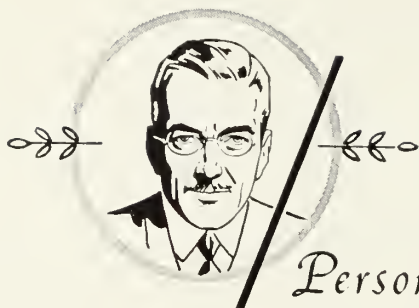
The plan, AMA contends, would not cover all of the aged, would deprive eligibles of their right to choose their own doctor and would be socialized medicine. The AMA is credited with being a prime factor in defeating the Social Security plan in the recent session of Congress. Congress then went ahead and enacted the program by which the federal government subsidizes elderly patients unable to pay their own medical-hospital bills.

How this fight will come out is unpredictable. But for the near pull one should not sell the doctors short. They are of a profession that has gained much stature through medical advances. Their word carries a lot of weight in that field. That the socialized approach will win in the long pull, however, might be expected. Looking back, one is impressed by the gains such methods have made in this century as the U. S. population thickens.—*Wichita Evening Eagle and Beacon*, December 3, 1960.

DOCTORS FOR THE FUTURE

When the American Medical Association proposed an increase in its dues spokesmen said AMA would devote \$300,000 a year of the increased revenue to scholarships for careers in medicine.

Such a program has been recommended by the
(Continued on page 35)



Personalities—IN KANSAS MEDICINE

Dr. Joseph Seitz, Ellsworth, was elected president of the Central Kansas Medical Society at their quarterly meeting. The society includes the eight counties in this immediate vicinity.

Other officers elected were **Dr. James J. Hamilton**, Wakeeney, vice-president, and **Dr. Eugene Siler**, Hays, executive secretary.

Dr. C. Arden Miller, dean of the Kansas University School of Medicine, spoke on "Expanding Medical Education." Other speakers were Carl Lamley, executive director of Stormont-Vail Hospital in Topeka, and Proctor Redd, Kansas Physicians Service (Blue Shield).

Dr. J. A. Budetti, Wichita, attended the annual meeting of the American Society for Ophthalmologic and Otolaryngological Allergy, the American Society for Ophthalmologic and Otolaryngological Surgery

and the American Academy of Ophthalmology and Otolaryngology meetings in Chicago.

Drs. Harvey A. Tretbar and **Leo P. Cawley**, Wichita, spoke before the Tri-County Medical Society at Harper. They presented a program on "Recent Clinical and Laboratory Advances in Adrenal Physiology."

Dr. E. D. Peffly has opened an office in Sedan. Dr. and Mrs. Peffly and their five children come from Arco, Idaho.

Dr. Peffly was graduated from the School of Medicine at the University of Oklahoma, at Norman, in 1953. He interned at Wesley Hospital in Wichita, and then spent two years as a flight surgeon in the Air Force. Following his service in the armed forces he entered private practice, which includes periods at Chetopa and Arco.

Dr. Ray T. Parmley, Wichita, acted as a member of the Residency-Review Committee for Anesthesiologists in Salt Lake City.

Dr. David L. Traylor, Emporia, recently was elected president of the Willard R. Cooke Obstetrical and Gynecological Society at Galveston, Texas. The society which Dr. Traylor heads was named after a famed physician at the University of Texas Medical School, where Dr. Traylor took residency training.

Dr. D. Cramer Reed, Wichita, was elected President of the Kansas Division of the American Cancer Society at a recent meeting. Dr. Reed attended the American Cancer Society meeting in New York.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

M. Martin Halley, M.D.
625 Mills Building
Topeka, Kansas

Quentin C. Huerter, M.D.
7345 Leavenworth Road
Kansas City, Kansas

Robert C. Lawson, M.D.
310 Medical Arts Building
10th & Horne
Topeka, Kansas

Wendell K. Nickell, M.D.
719 Mills Building
Topeka, Kansas

Karl K. Targownik, M.D.
Topeka State Hospital
Topeka, Kansas

Ethelee Ray, M.D.
K. U. Medical Center
39th & Rainbow Blvd.
Kansas City 12, Kansas

William A. Reed, M.D.
K. U. Medical Center
39th & Rainbow Blvd.
Kansas City 12, Kansas

Harry Salomon, M.D.
Topeka State Hospital
Topeka, Kansas

Jessie L. Spearman, M.D.
334 Kansas Avenue
Topeka, Kansas

Fae H. Spurlock, M.D.
V. A. Hospital
Topeka, Kansas

Dr. C. Arden Miller, dean of the University of Kansas Medical School, paid tribute to the importance of postgraduate training that doctors receive from non-university hospitals when he spoke to Sedgwick County doctors Dec. 13.

Dean Miller said an enormous number of new problems and pressures are being put on medical education. "This applies not only to the half of the doctor's education which begins in medical school but to his postgraduate training which he receives in non-university hospitals during his periods of internship and residency."

Dr. Wm. P. Callahan, Jr., Wichita, spent a week at Harvard and Yale Universities doing some studies on "Fluorescent Antibody Techniques."

Dr. C. F. Taylor, superintendent of the Sanatorium at Norton, has been named Flying Physician of the Year by the Kansas Flying Physicians organization. Dr. Taylor has been secretary of the organization for three years. The new title is honorary.

The flying physicians were organized several years ago and have a membership of from 50 to 60. They organized primarily to get acquainted with Kansas. Their meetings are social and their wives and families accompany them on their flying trips over the state.

Dr. E. F. Steichen of Lenora is president of the organization.

Dr. Ray T. Parmley, Wichita, was an Associate Examiner for the Oral Examinations of the American Board of Anesthesiologists in Salt Lake City.

Dr. Charles S. Brady, Atchison, was informed that he has been advanced to the rank of Fellow in the International College of Surgeons.

The next congress of the North American Federation of the world-wide group will be in Chicago in May, at which time Dr. Brady's degree will be conferred at a convocation ceremony.

Fellows of the International College of Surgeons have an entree all over the world. There are fewer than 100 Fellows in Kansas, virtually all close to large hospital operations in Wichita, Topeka, and Kansas City.

Dr. Ernest W. Crow spoke before the Iroquois Medical Society at Minneola. His topic was "Congenital Heart Disease."

Washington Highlights

(Continued from page 32)

Asked the Board of Trustees to study the question of blood replacement responsibility and also the matter of establishing health insurance fee schedules for *surgical assistants*;

Urged the Board to make every effort to reduce the number of physicians who are non-dues-paying members and approved a three-year study report on the relationships of *physicians not-in-private-practice* to organized medicine;

Requested the Board to present a completed *retirement* and *Disability* insurance program for A.M.A. members at the June, 1961, meeting, and

Agreed that the *General Practitioner of the Year* Award should be continued as at present.

The Kansas Press Looks at Medicine

(Continued from page 33)

AMA's council on medical education and hospitals. It is designed to help overcome "a decline in the number and quality of eligible college students manifesting a serious interest in medicine . . . at a time when it is predicted that the national population will be increased by as much as 55 million in 15 years."

It is, of course, a creditable aim to attract students with proper qualifications into medicine. The stern requirements and considerable expense of a medical education prevent many aspiring students from finishing such a course, and many others are turned back for one reason or another.

The University of Kansas School of Medicine can at present accommodate 740 students and has a current population of 711. Many young people who start medical training drop out, either through discouragement at the length of the course, inability to master some of the subject matter, or various personal reasons including a change of mind about their career.

The size of a graduating class in medical school always is considerably smaller than when the class started, and the doctors once trained are as likely to settle in another state as in the one that educated them.

Specialization, moreover, leads doctors away from rural communities and into urban centers where the hours are shorter and the pay higher, leaving the country towns in many cases without medical care and unlikely to attract any unless they take the initiative by building clinics, doctors' offices, and otherwise offering inducements.

The country is in little danger of training too many doctors. We should, as a matter of fact, be preparing to educate growing numbers of them as the population expands and our standards of health increase. The AMA's scholarship program should be of benefit in attracting students to that training.—*Topeka Daily Capital*, December 5, 1960.

Fitness, Hope, and Clarity

Here is how you can keep in shape. These recommendations come from a celebrated funny man who is always full of energy—Bob Hope.

Hope knows the importance of taking time out from a frenzied schedule—for a relaxed round of golf, or a just-plain session in the backyard hammock. With moderation as its keynote, Bob's "take it easy"



ELEVEN YEARS of television and an historic record of successes first in vaudeville then on the Broadway stage and in movies, have been kind to Bob Hope. The star of the "Bob Hope Buick Show" is still full of energy.

physical fitness program contains seven rules that can keep *you* looking and feeling your best every day of your life.

1. *Know the shape you're in.* Can you do a productive day's work and still have energy enough to enjoy your leisure hours? Are you seldom ill? If you can honestly answer "yes," it's likely that you're basically sound—and staying that way should be a simple matter.

2. *Find the diet that's right for you.* Though the health-building food *groups*—meats and fish, dairy products, fruits, and vegetables—are important to a well-balanced diet, no single food is essential. Nor is any single food the key to health, though it's true that sardines, cheeses, and other protein-rich and calcium-rich foods are especially valuable. Even fats and sweets—objects of so much scientific debate—have their place in a normal diet; in very small

quantities, they can aid weight reduction by helping to appease hunger.

Hasty eating is as bad as overeating. Take time out for a leisurely lunch *hour*—it will pay off in greater efficiency as well as better health. If you suffer from chronic indigestion, see your doctor immediately.

3. *Learn how—and how much—to exercise.* Tennis, handball, basketball, and skiing are best enjoyed by the already fit as fine ways to keep in condition. To get there? No better route than walking!

"And no better way to walk than round a golf course," Bob Hope adds. "Fresh air, beautiful scenery, good fellowship, and the fun of the sport. Even if you're a hacker like Bing, you'll get a big boot out of the whole experience." Hiking, bicycling, swimming are all excellent ways to build muscle tone and increase lung capacity. You don't have to be a weekend athlete. You can devote three half-hour periods a week to the exercises or sports that you like best. Exercises should be fun, not a punitive chore.

4. *Take a breather.* Literally! Most people are "shallow breathers," robbing their bodies of precious oxygen. When they fail to deliver enough to muscles and brain tissue, their bodies get tired. A yawn is nature's way of forcing you to take in more oxygen.

At least once a day, preferably while walking, breathe in as deeply as you can through your nose, exhaling through your mouth. Repeat 10 times. You'll not only feel and work better, but you'll sleep more soundly at night.

5. *Get enough sleep.* Enough is as much as you need to wake up refreshed and capable of a vigorous day's work. It may be eight hours, somewhat more or a lot less. On mornings when you can't drag yourself out of bed, yawn a little harder—the accompanying stretch stimulates circulation. Curiously enough, the same trick helps put you to sleep at night! It eases the day's tensions and helps them taper off toward a night of sleep.

Don't forget to wind the clock before retiring: the nagging awareness of something left undone can keep you awake. A small snack is a good idea. Should you wake up ravenous at four in the morning, eat! That's no time for self-discipline, and your body really needs the food.

6. *Relax!* Though you can't eliminate tension from your life, you can learn to control it.

Keep work and leisure hours as separate as possible. Whenever you can, avoid taking work home with you. Never skip the vacations to which you're entitled—if you do, your staff may have to replace their "indispensable man" a lot sooner than they'd like.

As Bob Hope says, it's really not hard to keep yourself in top flight shape when you take it easy.



ROBERT H. MAXWELL, M.D.

Dr. Robert H. Maxwell, Wichita physician, died Dec. 17 at Wesley Hospital after a lengthy illness. He was 53.

He was a member of the Plymouth Congregational Church. Born March 22, 1907 at St. Joseph, Mo., he was a graduate of the University of Kansas Medical School. He came to Wichita in 1938.

Among the many medical organizations to which he belonged are the Sedgwick County Medical Society (past president); American Board of Obstetrics and Gynecology; American College of Obstetrics and Gynecology; Central Assn. of Obstetricians and Gynecologists; Wichita Obstetrics and Gynecology Assn.; Kansas Obstetrics and Gynecology Assn.; Kansas City Gynecology Society.

Survivors include his wife, Dorothy, son, John, and daughter, Jane, all of the home.

JOSEPH W. SPEARING, M.D.

Dr. Joseph W. Spearing, 70, Columbus physician, died Dec. 15 in the Columbus hospital.

Dr. Spearing was born May 9, 1890 in New Orleans. He attended the University of the South at Sewanee, Tenn., and Tulane University School of Medicine. He practiced medicine at Norcatur, Kansas, for two years before serving with United States and the British armies in World War I. After his discharge he practiced in Cimarron, Kansas, from 1919 to 1939, when he came to Columbus as Cherokee County health officer. He was the medical director of the Kansas ordnance plant at Parsons from 1942 until he began practicing in Columbus in 1943.

He was a member of the Cherokee County Medical Society, Masonic lodge of Cimarron, Mirza Shrine of Pittsburg, Keith Reeves post of the American Legion in Columbus, St. Stephen's Episcopal Church in Columbus, and the Columbus committee for the Kansas Tuberculosis and Health Association. He was president of the Cherokee County Shrine Club.

Survivors include the widow, Mrs. Florence Spearing, a daughter, two sons, three sisters, and eight grandchildren.

Going Abroad? Here Are Some New Tips

The Public Health Service has announced the adoption of simplified quarantine procedures at international airports.

The principal change is elimination of group clearance, which preceded individual quarantine clearance on arrival of planes from foreign countries. Under the new procedures, if the aircraft captain certifies that no illness has been observed during flight, only individual clearance of passengers is required. Group clearance had been maintained to prevent spread of disease by travelers who might have symptoms of quarantinable illness on arrival. If such illness is reported aboard a plane, or there is an unusual disease problem in the country where the flight originates, the strictest quarantine procedures will be applied. The only major airport where passengers will be kept in groups is Miami, Florida, where the means of access to quarantine facilities makes the change impractical.

Additional streamlining of quarantine procedures is being made wherever possible.

NEW PROCEDURES

The new procedures stress the responsibility of travelers for maintaining valid immunization records and the responsibility of airlines for reporting illness observed among passengers.

Airline and Public Health Service officials consider this streamlining of entrance procedures an aid toward the objective of making visits to this country more attractive. This objective is in line with the President's action in proclaiming 1960 "Visit the United States of America Year."

Visitors from foreign countries and United States citizens returning from abroad will benefit alike from the new quarantine procedures. Immigrants and certain other non-citizens will continue to receive special Public Health Service inspection or examination as necessary to determine compliance with health provisions of the immigrant law.

The quarantinable diseases defined by international sanitary regulations are smallpox, yellow fever, cholera, plague, louse-borne typhus, and louse-borne relapsing fever. None of the quarantinable diseases is known to have been introduced into the United States from foreign countries since a smallpox outbreak in the New York City area in 1947, although quarantinable disease continues to occur widely in other parts of the world.

INTERNATIONAL QUARANTINE

Modern international quarantine emphasizes the prevention of illness through immunization of trav-

elers, control of insects, cleanliness of conveyances, and safeness of food and water supplies.

Vaccination against smallpox is of basic importance for international travelers. Both citizens and aliens entering the United States (except persons coming from exempt areas) must have an international certificate of smallpox vaccination, received within three years of arrival. Persons not properly immunized may be vaccinated by a quarantine officer, or released subject to further examination at their destination. If they have recently been in an infected area, they may be detained for medical observation for a period up to 14 days.

Smallpox vaccination usually is not required for travelers who have been only in certain quarantine exempt areas, if they arrive on a conveyance that has touched only at those areas. (The exempt areas are Canada, the Islands of St. Pierre and Miquelon, Iceland, Greenland, the West Coast of Lower California, Cuba, the Bahama Islands, the Canal Zone, the Bermuda Islands, the British Virgin Islands, and the Islands of Aruba and Curacao.)

For personal protection it was recommended by the Public Health Service that individuals planning trips to an area where smallpox is epidemic should be successfully vaccinated, or revaccinated, within six months of arrival in the infected area.

YELLOW FEVER

Travelers who have been in a yellow fever infected area within six days of arrival at United States ports are required to present an international certificate of yellow fever vaccination received within six years of arrival. This requirement applies when the traveler is bound for the "yellow fever receptive area" in the southern part of the United States and its possessions. The nation has not had a yellow fever outbreak since 1905, but in several southern States and United States possessions the mosquito that transmits this disease is still present. The Public Health Service and State and local health departments are cooperating in a mosquito control program at critical points.

Travelers who have been in a cholera infected area within five days of arrival at United States ports are required to present an international certificate of cholera vaccination received within six months of arrival.

PASSPORT REQUIRED

In preparing to travel abroad where a passport is required, individuals receive the international certificates of vaccination form with the passport applica-

tion. The form may also be obtained from travel agencies, transportation companies, local and State health departments, and offices of the Public Health Service, Department of Health, Education, and Welfare. Detailed information on vaccination requirements and recommendations may also be obtained from those sources or from Public Health Service Publication No. 384 (revised 1959), "Immunization Information for International Travel," for sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 30 cents; reduction of 25 per cent is given on purchases of 100 or more copies.

Be an Economy Driver

Give your brakes a break. When using brakes, and especially when braking from high speeds, slow down gradually if possible. Don't hold your brakes down for long periods of time—this creates terrific heat which eventually leads to "brake fade." It's far better to brake with short bursts which also helps to avoid skids. Switching into a lower gear cuts down your speed, too.

Don't brake while going around a corner. Anticipate the speed in which you can go through the corner and brake prior to entering, ensuring that you're in a gear which will enable you to accelerate as you come out of the corner.

Watch the five. Every driver has five cars to worry about: his own, the one ahead, the one behind, the one approaching, and the one pulling into the traffic stream from the side. Watch them and you won't add to the frightful toll of killed and injured on our nation's highways.

Let your foot save you money. Tests show that a light and steady foot on the accelerator can cut your car's annual gas consumption by as much as one-third. But don't trust to gadgets—they've generally proved worthless at saving fuel. An automotive survey shows that you can softpedal the annual gas and oil bill by about fifty dollars if you go soft on the pedal.

Summerize by checking your battery, engine oil and cooling system often, since summer heat evaporates water faster. When checking the battery see to it that the battery plates are covered. Overfilling shortens the life of your battery.

Winterize early. In the fall, get either a permanent or all-weather type anti-freeze, plus a complete inspection overhaul, which should include a change to the right grade of oil.

Never race a cold engine. Idle a few minutes after starting until the oil warms up. In the snowy season, put on chains by lining them up with the wheels, and driving onto them. The chains can then be pulled

up over the wheels. When driving on *snow or ice*, never brake or accelerate violently.

Go easy on the tires. Too much speed and incorrect pressure are two ways not to save rubber. Check your Driver's Manual for the correct pressure. If high-speed motoring is anticipated, or you're carrying an extra heavy load, it's permissible to raise that pressure three to four pounds, not more. However, air should never be released from the tires when pressure has risen due to tire heat generated by high speed driving.

Sudden stops and starts, curb rubbing, neglected tread cuts, unbalanced wheels, and bent or rusted rims are all potential tire-killers. Common-sense care, frequent front-end alignment, and frequent rotation of all five tires will add up to 50 per cent to the life of your tires.

Wash with care. Set the brakes when washing your car, or ask the service man to do so, so that the shoes pressing against the drums will prevent water from wetting the brake linings. Should water wet the linings while you're fording deep water, drive your vehicle with one foot on the accelerator and the other on the brake. The friction will heat up the lining and evaporate the water from the drum.

The best care that can be given to the finish of your car is frequent washing with plain warm water. A *very light* waxing or polishing with a material containing no abrasive gives you the added advantage of a slick surface which is more resistant to scratching or marring, but should not be overdone. Remember that wax which is not cleaned off the paintwork is more harmful than not waxing at all.

Lubrication. The lubrication of your vehicle is obviously of paramount importance and should be carried out at regular intervals, as specified in your Handbook. Extra care in this direction not only increases the life of your car, but also makes it a far more pleasant piece of machinery to drive.

Watch those spark plug danger signals. Always use the correct heat-range spark plugs in your vehicle. Check the color and condition of the plugs when periodically cleaning them. This can give you a good indication of the condition of the engine. Oily plugs, for instance, may mean that the engine is using oil. This may be happening past the pistons or through the valves and valve guides. A black plug indicates that the mixture is too rich, while a white one means that it's too weak. One should aim for the happy medium—a light brown color.

Finally, no story on car maintenance would be complete without a tip on how to "maintain" good relations with that congenial man-in-blue, the traffic cop. If you're flagged down on the highway, be courteous, apologize, and tell your story honestly. Being rude will only hurt your cause, and a soft answer may turn away a traffic ticket!

The Kansas Medical Society—1960-1961

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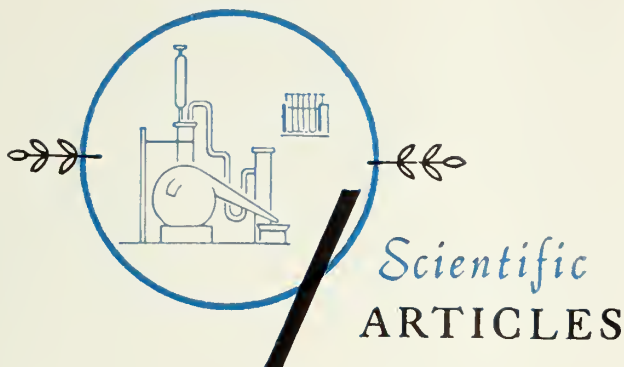
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Intracranial Trauma

Carotid Arteriography in Its Management

WILLIAM P. WILLIAMSON, M.D., F.A.C.S.

HEAD INJURIES WILL UNDOUBTEDLY continue to plague us as a national problem. The shocking fact that more Americans have been killed on the highways of our own land, than have been killed in all of the wars put together, makes it evident that we physicians will continue to face this problem in increasing numbers in the future. Thus, any improvement in the management of this challenging task should readily be welcomed by all.

Only five per cent of head injuries require actual surgery, yet there are a large number in which the question arises as to whether or not surgery is indicated. Thus, any study which will clearly rule in or out the surgical indications is welcomed. It is certainly an improvement if one can eliminate unnecessary surgery in the critical head injury, and any test that will locate surgical lesions that would be missed by routine exploratory trephinations is of obvious importance.

Until five years ago, our general policy in considering the possibility of surgical bleeding in a critical head injury was "when in doubt, trephine." The number of negative trephinations of the skull were reported proudly as evidence of careful management of head injuries. This was considered a reflection of

good surgical judgment, and was evidence of a service that was on its toes, leaving no stone unturned to make sure an intracranial clot is not being overlooked. These figures did not, however, reflect the occasional case in which trephination of the skull actually missed an abnormally placed extradural hematoma, either at the frontal pole or in the posterior fossa, resulting in death of the patient. They also did not reflect intracerebral hematomas which were missed by simple trephinations of the skull, nor did these figures reveal how many patients had died following unnecessary surgery on a critical head injury. It is true that simple trephination of the skull is minor surgery, but other factors enter into the mortality rate of this operation. Under local anesthesia, the patient is thrashing about, is hidden under drapes with his head twisted to one side and then to the other, and this presents a difficult problem to the anesthetist to keep the airway open, particularly if there is vomiting, bleeding from the nose or mouth, or excessive secretions that are so common in head injuries. The other alternative is general endotracheal anesthesia, but adding general anesthesia to the patient with a critical head injury increases the mortality rate.

Head Injuries Management

A gradual transition has occurred in our management of head injuries over the past five years, so that we now are almost startled to realize that we prac-

From the Department of Surgery, Section of Neurosurgery, University of Kansas School of Medicine, Kansas City 12, Kansas. This paper was presented at the Kansas Chapter of the American College of Surgeons meeting at El Dorado, Kansas.

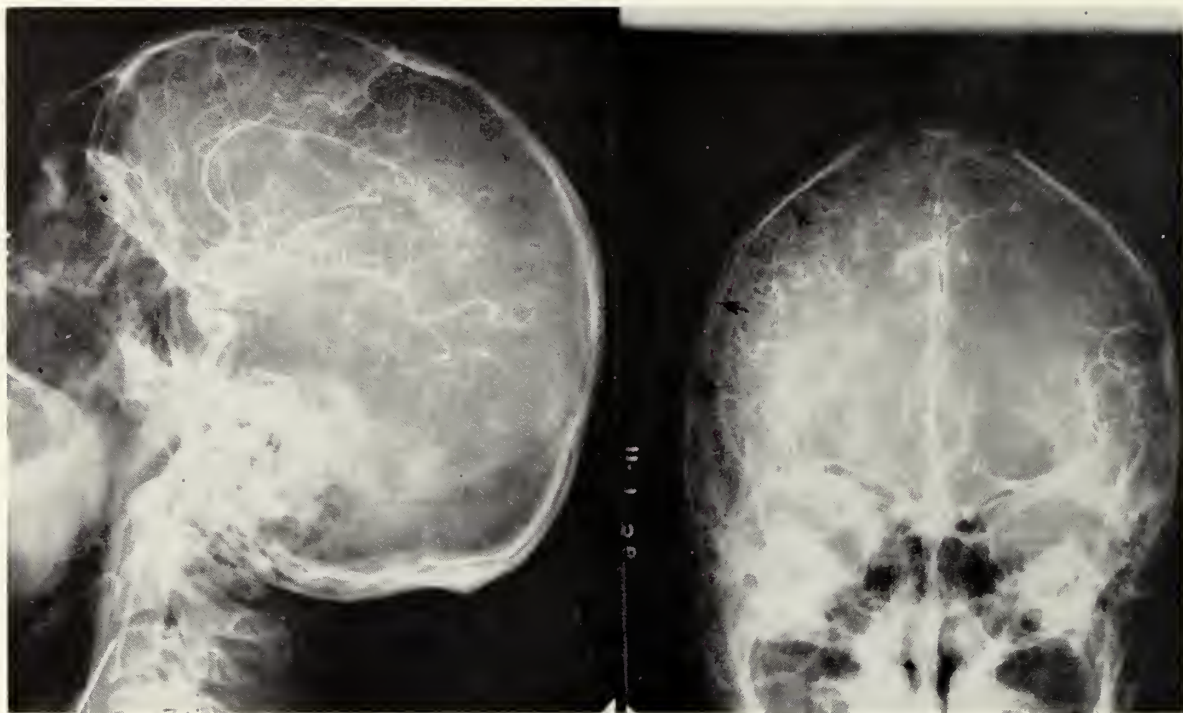


Figure 1. Normal arteriogram excluding subdural hematoma.

tically never perform negative trephinations of the skull. We now have at our disposal intracranial arteriography, which specifically diagnoses preoperatively extradural hematoma, subdural hematoma, and intracerebral hematoma, clearly indicating surgery, and exactly localizing the lesion. The exclusion of such

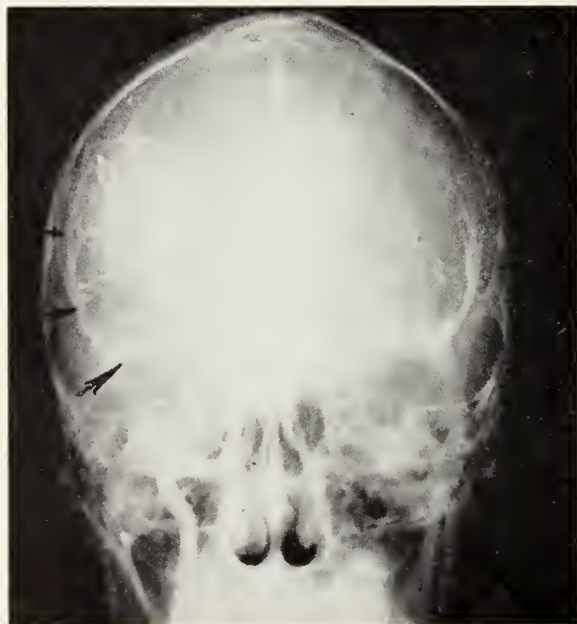


Figure 2. Extradural hematoma displacing surface vessels away from skull in temporal fossa.

lesions by this test eliminates the need of useless surgery. This test has come to our aid on many occasions in which the differential diagnosis was confusing, and has avoided surgery in patients in whom the eventual proper diagnosis was established as fat embolism, thrombosis of the carotid artery in the neck, thrombosis of the middle cerebral artery, or spontaneous rupture of an intracranial aneurysm. How often one has had to face the problem of the unconscious patient brought in hemiplegic, with a bruise on the head, and have the question arise "did this patient have a stroke, and then fall and bump his head, or did he sustain a head injury which has now produced hemiplegia and coma?" We now have a much easier way out than multiple skull trephinations, and if these are negative, then a ventriculogram.

Arteriograms have now become so common on our service that they are routinely utilized in every head injury when there is the least suspicion of any change for the worse, or in one who is not improving as rapidly as we think he should. The technique is simple and safe, and can be done under local anesthesia. The patient is placed on the x-ray table with chin extended. A Courmand needle with hollow stillete is percutaneously inserted into the common carotid artery by palpation. This, of course, does require a bit of practice and skill, but can be readily mastered by the average resident or individual who does the test frequently. Six to eight cc of 50 per cent hypaque are rapidly injected, and AP and lateral views of the

skull are taken. Various techniques are used in which serial films may be obtained. At present, we are obtaining four films in each of the two planes on one injection of dye. Thus, the arteries, capillaries, and veins of the brain are visualized in both lateral and AP planes. Displacement of the surface vessels away from the dura is absolutely diagnostic of extradural or subdural hematoma, depending on the location of the displacement. Typical deformity of the deeper vessels is characteristic of intracerebral hemorrhage, and discretely localizes masses in either the frontal or temporal lobes. Completely negative arteriograms exclude most space occupying masses, and thus avoids unnecessary surgery. This test can be quickly done, does not upset intracranial pressure as air studies do, and does not require general anesthesia. Complications are rare.

Cases

Several examples are herein briefly cited to show how this study aids in the management of head injuries.

The first case is that of an adult who sustained a head injury which rendered him unconscious, causing a linear skull fracture on one side. He recovered satisfactorily, was dismissed from the local hospital in six days, but two weeks later his local physician noted beginning papilloedema in his optic fundi. In one more week, full blown choked discs demanded

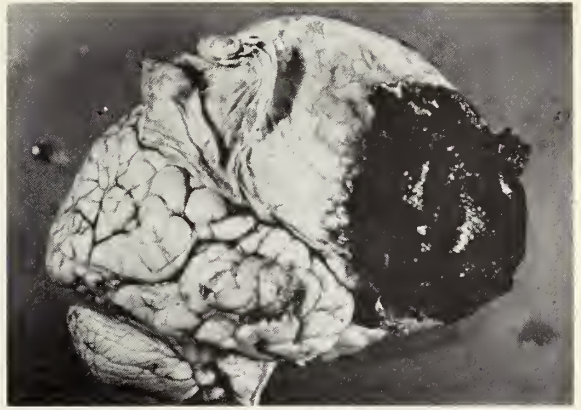


Figure 3. Atypical extradural hematoma at frontal pole missed by routine temporal trephination.

that we hospitalize him with the presumptive diagnosis of subdural hematoma. Carotid arteriograms were done (*Figure 1*) which reveal the normal pattern of surface vessels snug up against the dura, positively excluding subdural hematoma, and no shift or deformity of the vessels to suggest intracranial mass. We thus felt sure that this was simple transient increase in pressure from obstruction of the subarachnoid pathways by blood, and that spontaneous recovery would occur. Accordingly, no surgery was performed, and within a month the papilloedema receded. Interestingly enough, this patient is now suing



Figure 4. Atypical extradural hematoma at frontal pole displacing anterior cerebral artery posteriorly and to right.



Figure 5. Chronic subdural hematoma displacing surface arteries and veins away from dura.

his employer for a large sum of money claiming headaches, nervousness, and personality change due to trauma. Had we operated and done negative trephinations of the skull, he would likely have had terribly painful scars, and the four burr holes would probably augment the symptoms and the judgment.

The following case is an example of a typical

extradural hematoma, suspected in a child who, after a head injury and lucid interval, became more stuporous and developed a 3rd nerve palsy. Carotid arteriogram (Figure 2) reveal the typical displacement of the surface vessels of the brain away from the skull in the temporal fossa. Note also the upward displacement of the middle cerebral artery due to



Figure 6. Intracerebral hematoma in frontal lobe displacing anterior cerebral artery downward, confirmed by pneumoencephalogram.

the low lying clot. Immediate surgery verified the lesion, and excavation of the clot resulted in prompt recovery.

The next case is a tragic example of an extradural clot in a five year old child admitted to our emergency room six years ago, with the classical clinical history and findings of an extradural hematoma. Bilateral trephinations in the temporal region were negative, and the child died within two hours. Autopsy revealed a massive extradural clot (*Figure 3*), atypically located over the right frontal pole. We had missed the lesion with our trephination by one centimeter, and had it been located, it could have been easily evacuated and saved the child's life. At that date we were not using arteriograms in head injuries.

A similar extradural hematoma at the frontal pole was recently seen in an adult, and was first missed by temporal trephinations. Arteriograms were then done (*Figure 4*) which reveal a marked shift of the anterior cerebral artery to one side and posteriorly, locating the clot over the anterior pole. He was quickly returned to the operating room for successful evacuation of the clot.

Figure five is simply an example of the typical arteriograms of a patient with a subdural hematoma. Note the displacement of the surface vessels in both the arterial and venous phases, and note the site of the lesion is at a higher location than the extradural hematoma.

Next are examples of successfully evacuated intra-

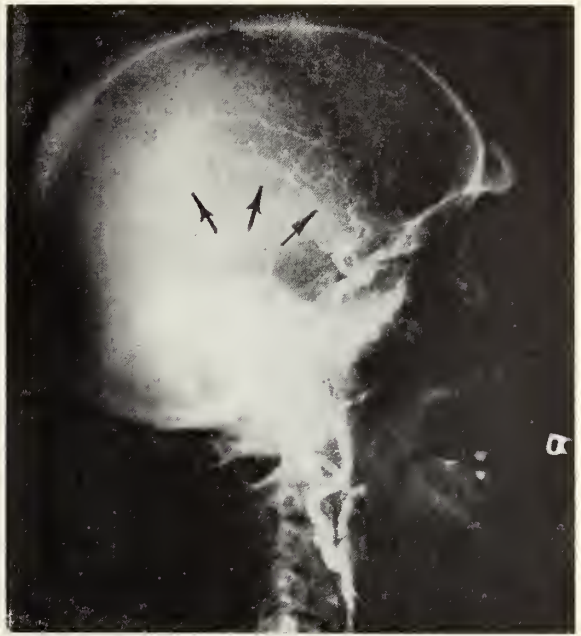


Figure 7. Intracerebral hematoma in temporal lobe displacing middle cerebral artery upward.

cerebral hematomas located by arteriography. The first one is in an adult who struck his head on a rafter and subsequently had a Jacksonian seizure. Figure six reveals the focal downward displacement of the supracallosal artery, confirmed by pneumoencephalo-



Figure 8. Aneurysm of internal carotid artery below bifurcation.



Figure 9. Thrombosis of internal carotid artery in the neck.

gram. Liquid hematoma was aspirated by needle suction, relieving the symptoms. This lesion obviously would have been missed by a simple trephination of the skull. The second example is that of an elderly patient admitted with no history, who was stuporous, hemiplegic, and had a bruise on his head. Arterio-



Figure 10. Atherosclerotic plaque markedly narrowing internal carotid artery just above bifurcation of common carotid artery in the neck.

grams revealed (Figure 7) marked elevation of the middle cerebral artery, diagnostic of a large mass in the temporal lobe. Following surgical evacuation of a large hematoma within the temporal lobe, the patient recovered.

Examples of other conditions, diagnosed by arteriography, that mimic head injury are pertinent. One is a 15-year-old boy who was in a car wreck, sustaining multiple fractures, but only minor head injury. Three weeks later, he had severe headache, became stuporous, and spinal tap revealed bloody spinal fluid. Arteriograms (Figure 8) revealed no lesion resulting from trauma, but disclosed a congenital aneurysm of the carotid artery which had ruptured. It was successfully ligated intracranially with no residual neurologic deficit.

Back to the old question of "which came first, the stroke or head injury?" Figure nine is an example of an arteriogram disclosing thrombosis of the carotid artery in the neck, this one being diagnosed too late to benefit the patient by surgery. Figure 10, however, reveals a typical atherosclerotic plaque producing fluctuating neurologic deficit, which can be surgically corrected by endarterectomy by the vascular surgeons.

A final example is that of a patient who had a convulsion, fell off a ladder, struck his head, and had bloody spinal fluid, and then subsequently continued to have seizures. Did he have the seizure from some other brain lesion with an insignificant head injury, or did his head injury result in post-traumatic epi-

(Continued on page 60)

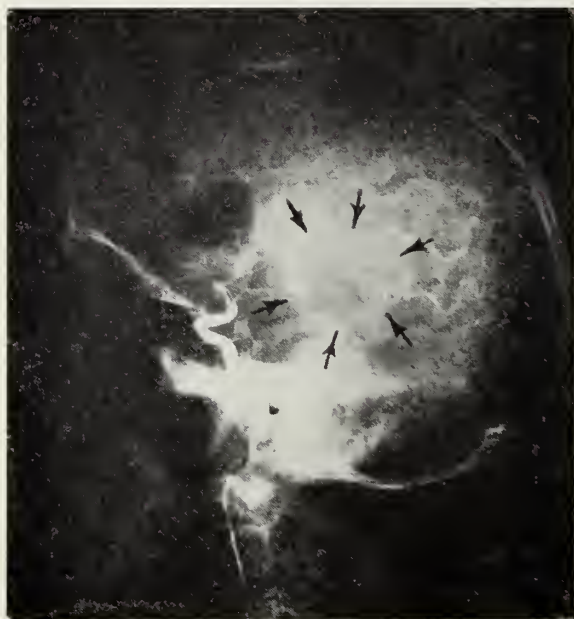


Figure 11. Brain abscess outlined in arteriogram by dye in the capillaries of its capsule.

Concepts of Intersexuality

New Methods of Sexual Identification and Improved Therapy for These Unfortunates

WILLIAM H. BROWNING, M.D.; D. CRAMER REED, M.D.;
HAROLD F. O'DONNELL, M.D., *Wichita*

THE SOMEWHAT obscure subject of intersexuality is worthy of review for several reasons.

First of all, we continue to live in this period which has been characterized as evidencing a "population explosion." There are more and more children, hence there are greater numbers of children showing these abnormalities.

Secondly, a prompt and proper recognition of the true state of affairs in these cases is mandatory. That is to say, a real disservice will have been rendered these unfortunates and their families, if the physician at the delivery table, or the physicians consulting with him, misinterpret the sex of the infant. Though these cases are unusual, they are not rare, and the majority of physicians will at some time be called upon to render judgment in some phase of this problem.

Finally, in the past decade, there have come into being new methods of sexual identification, clearer concepts regarding some of the syndromes of intersexuality, and remarkably improved therapy for many of these individuals.

Sexual Development

Genetic sex is determined at the moment when the ovum bearing an X chromosome is fertilized by the spermatozoon bearing either an X or a Y chromosome. We are well familiar with the fact that if the male cell bears an X chromosome, the individual will in the ordinary course of events, be a female and if the male cell bears a Y chromosome, likewise, the individual will be male.

Similarly, we are aware that an interference with orderly progression sometimes happens and that as a result hermaphroditism and pseudohermaphroditism occur. Table I demonstrates in outline form the steps in sexual development which are discussed below.

The theory is advanced, and there is good evidence in animal experimentation to support it, that chromosomal or nuclear sex does determine gonadal sex and that gonadal sex determines genital and somatic sex, that is, body sex. Then an interference or an

injury to the gonads at the appropriate embryologic period could alter genital sex (internal and external) and thus body sex.

Female rabbit embryos castrated in utero prior to

The present concepts of hermaphroditism and kindred disorders are briefly reviewed. A plea is made for accurate sexual identification of the newborn. Improved methods of diagnosis and treatment are pointed out.

the stage of sexual differentiation, go on and develop normal female external and internal genitalia. More interesting is the fact that male rabbit embryos castrated in utero at the same period, develop normal female internal and external genitalia; the Mullerian structures develop satisfactorily, and the Wolffian structures withdraw. Although it has not been proven not to be due to the influence of the maternal hormonal effects, these and other animal experiments indicate that mammals tend to develop as females

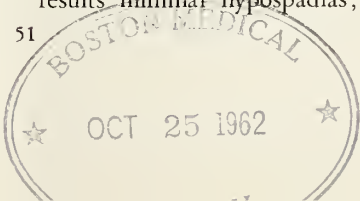
| TABLE I | |
|---------------------------|---|
| SEXUAL DEVELOPMENT | |
| Genetic (chromosomal) Sex | → Gonadal Sex |
| Gonadal Sex | → Genital Sex (internal genital and external genital) |
| Genital Sex | { Legal Sex Sex of Rearing |

except as influenced in the opposite direction by the male gonadal effect.¹

Rabbit experimentation involving various degrees of testicular injury, and therefore various degrees of male hormone deprivation, suggest that the greater is the deprivation, the greater is the genital change.¹

Thus, with the least testicular interference there results minimal hypospadias; with greater interfer-

This paper was presented before the Kansas Chapter of the American College of Surgeons meeting in El Dorado.



ence there results marked hypospadias. Then, as still greater male hormone deficiency is caused in the fetus, there may be exhibited feminine external genitalia but male internal genitalia, and finally there results a male with female internal and external genitalia.

Abnormal Genitalia in the Newborn

Certainly it is the appearance of the external genitalia which causes the signer of the birth certificate to write down his verdict as to whether the child is male or female. That verdict may not be an easy one at which to arrive. The appearance may be such as strongly to suggest severe hypospadias with testicular undescend. There is the question though as to whether one is dealing with a hypospadiac penis or a hypertrophied clitoris wherein the apparent urethral meatus is actually the opening into the urogenital sinus. It is not suggested that every hypospadiac offers a problem in sexual differentiation; however, the more severe cases, the perineal hypospadiacs, may pose a problem.

It is worthwhile to examine the advice given by those physicians who have amassed a considerable experience in dealing with matters of intersexuality.² The advice is given that when one is faced with a problem of deciding whether an infant is male or female one should simply say, "I don't know," and continue saying that until one does know with certainty. These physicians are emphatic in this and warn specifically that one should avoid such statements as, "I don't know but I think probably that it is a boy" or "I don't know, but the odds are it is a girl." It is far better to say that it will be impossible to say what the child's sex is until after certain tests have been made. The reason for this is that if any word is given indicating one sex and later that verdict must be changed, a lifelong stigma may have been attached, one which could have been avoided. Most often the tests necessary to identify correctly the child's sex can be completed in a few days.

Diagnosis

The first diagnostic test, and the easiest to do, is the sex chromatin test. This test reported by Moore and Barr in 1955 is relatively simple; stained preparations of cells obtained by appropriate scrapings of the buccal mucosa are studied under oil immersion. Though it has been found that most other body cells would serve for this examination, the oral mucous membrane is most readily accessible. The technique is to examine the nuclei of the cells for the sex chromatin mass lying adjacent to the nuclear membrane. In females, those cells exhibiting the characteristic chromatin mass, generally will be in the proportion of about 50 per cent; thus females are spoken of as being "chromatin positive."

On the other hand in males, the sex chromatin mass seldom will be present in over five per cent of the nuclei. Males are termed "chromatin negative."

The second most helpful test is the urinary 17-ketosteroid assay. One reason that this test is so helpful is that in the matter of intersexuality, one may divide cases into two great groups (*Table II*), the

TABLE II

| |
|---|
| A CLASSIFICATION OF INTERSEXUALITY |
| PSEUDOHERMAPHRODITISM |
| Adrenogenital Syndrome |
| HERMAPHRODITISM |
| True Hermaphroditism |
| Male Hermaphroditism |
| Female Hermaphroditism (without virilization) |
| GONADAL APLASIA (Turner's Syndrome) |
| KLINFELTER'S SYNDROME |

first represented by the adrenogenital syndrome and the second represented by all of the various other deformities.

The Adrenogenital Syndrome

In the disorder known as the adrenogenital syndrome there is elevation of the 24 hour urinary output of 17-ketosteroids. Infants, so afflicted, excrete the 17-ketosteroids in excess of the normal one mg. per 24 hours. Recent advances have shown that the test for pregnanetriol is a perhaps even more specific one in evaluating this syndrome.

The defect responsible for this disease is a basic inability for proper production in the adrenal cortex of compound F. This in turn leads to greater stimulation by the pituitary gland of the adrenal cortex; the response is an abnormal production of the androgenic 17-ketosteroids.

The effect of this androgenic hormone on the developing female fetus is notably on the external genitalia. The clitoris assumes various degrees of hypertrophy and may much more nearly resemble a penis. Closure of the vaginal outlet leads to there being a urogenital sinus opening which can easily be confused with the meatus of the perineal hypospadiac.

If the newborn in question exhibits elevation of the 17-ketosteroids the diagnosis is congenital adrenal hyperplasia and if the chromatin test is positive certainly the child is female.

Tumor is hardly to be considered in the newborn but in older children and adults the cortisone suppression test should be carried out in order to differentiate adrenal hyperplasia from adrenal tumor.⁴ In this test, large doses of cortisone are administered and

the 17-ketosteroid level of excretion is compared with the level prior to cortisone administration. Whereas in adrenal hyperplasia the level of excretion falls, if a tumor is present, the level of excretion remains the same or even rises.

Wilkins discovered in 1950 that the administration of cortisone in proper dosage in cases of female pseudohermaphroditism due to adrenal hyperplasia would suppress the adrenal over-activity and virilization.

This has meant essentially normal lives for these individuals who formerly were doomed to live out their lives as freaks. In addition to this medical treatment, these children almost always require surgery directed at the attainment of more normal external female genitalia—that is, clitoridectomy and plastic revision to open the vaginal outlet. These surgical procedures should be carried out sufficiently early in life so that the child will retain no memory of her abnormal genitalia.

The adrenogenital syndrome occurs in males but discussion of that disorder is not pertinent to intersexuality.

Gonadal Aplasia and Klinefelter's Syndrome

Recent advances have been made in understanding two kindred disorders, one in each sex.

Turner originally described a syndrome wherein girls exhibited infantilism, webbed neck, and cubitus valgus.⁶ There is a wide variation in the abnormalities shown by different individuals but short stature, sexual infantilism, and elevation of pituitary gonadotrophins usually are present. Laparotomy usually discloses infantilism of the uterus and other Mullerian structures and little if any evidence of gonads. Treatment consisting of estrogenic hormone replacement is helpful in gaining breast development and attaining cyclic menstruation. The term generally applied to this syndrome is gonadal aplasia.

Since development of the sex chromatin test it has been discovered that these individuals generally are chromatin negative.⁷ Actually, a few of these individuals have been found to have phallic enlargement.

Although Klinefelter originally described a disorder including small testes, azoospermia, gynecomastia, normal external genitalia, and elevated urinary excretion of follicle stimulating hormone, it is now felt that all of these features need not be present to constitute a case of Klinefelter's syndrome. Certainly cases are seen without enlargement of the breasts. Three certain requisites are the azoospermia, high urinary gonadotrophin titre, and testicular tubular hyalinization with relatively normal Leydig cell distribution. In general, these men have normal sexual

function. Usually they consult a physician because of breast enlargement or infertility.

Interestingly enough, the chromosomal typing in most of these men, is positive, that is female.

No hormone treatment is indicated except for the rare case which exhibits hypogonadism. If breast development is extreme, plastic removal may be indicated.

Recently, studies of the individual chromosomes using special techniques indicate a bizarre sex chromosome distribution in these two syndromes.^{9, 10} In gonadal aplasia there is only a single X chromosome and no Y chromosome; in Klinefelter's syndrome there are two X chromosomes and one Y chromosome.

In summarizing the remarks regarding these two interesting syndromes, one can say, from the fact that the defect is actually within each cell, that only symptomatic treatment makes any sense. Certainly their sex of rearing should never be interfered with and it would seem unwise to divulge to them all of the contradictions of their bodies.

True Hermaphroditism, Male Hermaphroditism, and Female Hermaphroditism Without Virilization

There remain to be mentioned three other types of hermaphroditism: true hermaphroditism, male hermaphroditism, and female hermaphroditism without virilization. It should be pointed out that these three conditions together amount to far fewer cases than are accounted for by the adrenogenital syndrome. Whereas the diagnosis of female pseudohermaphroditism should be made without having to resort to laparotomy, the diagnosis of these conditions almost surely does require surgical exploration and gonadal biopsy.

A few more than 60 cases of true hermaphroditism have been reported in this century.⁴ To be classified thusly, an individual must be found to exhibit both ovarian and testicular elements; these tissues must be identified as such by microscopic examination. In other words the criterion for diagnosis is gonadal sex. It has been found that these individuals may demonstrate either chromosomal maleness or femaleness. The tremendous list of various gonadal and genital abnormalities that these individuals may exhibit makes their discussion in this treatise impossible.

Male hermaphrodites exhibit chromosomal negativity; that is they are genetic males.⁴ Generally the external genitalia are female in character although phallic enlargement may occur. At puberty these individuals may develop in the direction of femaleness—breast enlargement, female body habitus, etc.; or development may be in the direction of maleness—beard growth, lack of breast development, and in

fact all of the male attributes. Thus the only evidence of hermaphroditism may be the finding, noted at the time of hernia repair or laparotomy for incidental reasons, of female internal genital elements (Mullerian structures) and testes. These individuals have been known to be fertile and father offspring.

However, the preponderance of male hermaphrodites bear external genitalia of female resemblance and so are most often raised as females.

Female hermaphroditism not due to adrenal hyperplasia, that is female hermaphroditism without virilization is the rarest of these disorders. Such individuals are chromatin positive, have female internal genitalia, but have external genitalia bearing a male like appearance. Inasmuch as cases have been reported where the mother had been receiving androgenic or androgen like substance during the pregnancy and where the mother was afflicted with an arrhenoblastoma during pregnancy, exogenous source of androgen may be causative in this syndrome.^{11, 12}

In this presentation much has been neglected of necessity. Such matters as the use of endoscopy and radiography in diagnosis, the significance of estrogen levels in certain cases, the wide variety of oddities present in different individuals showing true hermaphroditism all are things passed over in the interest of brevity.

Sex of Rearing

In closing, there is one matter which should be stressed. We have been speaking of the sex of rearing. If one should encounter an individual with contradictory sexual features how should one go about making a decision as to whether that child should be raised as a male or female? Here we are speaking of the child older than a newborn. Should one be guided entirely by what the parents say? Do they want a boy or do they want a girl? Should one try to construct external genitalia to match the gonadal sex? Should one remove the internal genitalia and gonads which contradict the individual's sex of rearing, the sex which was assigned at birth? All of these questions may prove exceedingly difficult to answer but the experiences of others provide us with some very good answers.

As a practical matter it should be pointed out that it is infinitely easier to manufacture a reasonably suitable set of female fixtures than it is to construct or reconstruct those of the male. Although in general, assignment of sex at birth should be according to chromosomal evidence, the meagerness of the phallus in some male hermaphrodites may be a cogent argument in favor of assignment to the female sex.

As regards the possibility of changing the sex of rearing, psychologists with experience have found that after about the 18th month of life a reassignment of

sex is likely to result in a psychologically inadequate individual.² This is not an absolute rule, this rule not to reassign sex after age of 18 to 24 months, but apparently always deserves the most serious consideration. It seems preposterous to maintain a child with the adrenogenital syndrome as a boy, one with little hope for any kind of physical normalcy, when it is realized that with cortisone and a little surgery, one could have an individual essentially suitable for a rather normal female life. It seems preposterous to do this simply because of this admonition from the psychologists. However, the figures showing the high percentage of severe psychological maladjustment if these admonitions are ignored lead one to respect the grave consequences of sexual reassignment. This is not a hard and fast rule and no decision should be made until after careful psychological evaluation of the child has been carried out.

These are problems which may be avoided if at the time of birth, when there is any doubt as to the sex of the infant, proper testing is carried out and the correct sexual label is attached.

References

1. Jost, A.: Hormonal factors in the development of the fetus. Cold Spring Harbor Symposia of Quantitative Biology, 19:167-180, 1954.
2. Bunge, R. G., Albert, A., Burns, E., and Hampson, J. G.: Panel Discussion: determination of sex and what to do about it. J. of Urol. 81:13-24, 1959.
3. Moore, K. L., and Barr, M. L.: Smears from the oral mucosa in the detection of chromosomal sex. Lancet 2:57-58, 1955.
4. Jones, H. W. and Scott, W. W.: *Hermaphroditism, Genital Anomalies and Related Endocrine Disorders*. The Williams and Wilkins Co., Baltimore, 1958.
5. Wilkins, L., Lewis, R. A., Klein, R., Gardner, L. I., Crigler, J. F., Rosenberg, E., and Migeon, C. J.: Treatment of congenital adrenal hyperplasia with cortisone. J. of Clin. Endoc. 11:1-25, 1951.
6. Turner, H. H.: A syndrome of infantilism, congenital webbed neck, and cubitus valgus. Endocrinology, 23:566-574, 1938.
7. Wilkins, L., Grumbach, M. M., and VanWyk, J. J.: Chromosomal sex in ovarian agenesis. J. Clin. Endocrinol., 14:1270-1271, 1954.
8. Klinefelter, H. F., Jr., Reifenstein, E. C., Jr., and Albright, F.: Syndrome characterized by gynecomastia, aspermatogenesis without A-Leydigism, and increased excretion of follicle-stimulating hormone. J. Clin. Endocrinol., 2:615-627, 1942.
9. Ford, C. E., Jones, K. W., Miller, O. J., Mittwoch, U., Penrose, L. S., Ridler, M., and Shapiro, A.: The chromosomes in a patient showing both mongolism and the Klinefelter syndrome. Lancet I:709-719, 1959.
10. Ford, C. E., Jones, K. W., Polani, P. E., de Almeida, J. C., and Briggs, J. H.: A sex-chromosome anomaly in a case of gonadal dysgenesis (Turner's syndrome). Lancet I:711-713, 1959.
11. Grumbach, M. M., Ducharme, J. R., and Moloshok, R. E.: On the fetal masculinizing action of certain oral progestins. The Journal of Clinical Endocrinology and Metabolism, 19:1369-1380, 1959.
12. Brentnall, C. P.: A case of arrhenoblastoma complicating pregnancy. J. Obst. and Gynec. Brit. Emp., 52:235-240, 1945.

Cystocele and Prolapse

The Watkins-Wertheim Interposition Operation— Its Uses and Limitations

LAURENCE S. NELSON, M.D., F.A.C.S., Salina

MOST AMERICAN WOMEN are overfed, and at and beyond midlife adiposity is deposited in the abdominal wall, in the omentum and the mesentery of the intestines. Caloric requirements are altered downward in most, due in part at least to diminished endocrine function. The wide female pelvis for childbearing and the injuries attendant upon that, as well as the relaxations which follow, are other causes of prolapse of the uterus.

As a general surgeon interested in observing pelves of many women following childbearing and the "middle age spread," it seems that even with no injury apparent to either vaginal mucosa or perineum, the two leaves of the levator ani muscle may be widely separated.

The supporting structures in the human anatomy are certainly inadequate. In the process of evolution we have not yet developed supporting ligaments sufficiently strong to prevent various types of ptosis. Witness the number of people with visceroptosis, nephroptosis and varicose veins of the extremities. In this mechanical age few women in the average American home need to do much manual labor because of the automatic machines. Perhaps as a result, organs drop in a large segment of American people. We believe it to be the patient's own business where the organs are carried until or unless they cause symptoms. However, a ptotic uterus can cause an array of symptoms of which backache, dysuria, occipital headache, fatigue, and leukorrhoea (from infected cervical glands) are the most prominent.

This paper is presented, not with the idea of presenting a new procedure for the repair of prolapse and cystocele, but more particularly to review a portion of the history of the development of these operations, as well as to point out their advantages in a carefully selected group of patients.

It is to be hoped that a comparative review of Dr. Watkins' and Dr. Wertheim's techniques may prove of some academic interest to other surgeons.

I learned the Wertheim technique in Vienna in 1926, and was informed upon my return to this country that Dr. Watkins' similar operation ante-

dated Wertheim by a year or more. As nearly as I have been able to sift the facts through considerable literary research, Dr. Wertheim published, in 1899, a description of two operations in which he brought the body of the uterus through the anterior fornix. He apparently fixed the body of the uterus in this area, leaving the corpus exposed in the vagina. The technique herein described was a gradual evolution from those two original cases. The publication in 1906 of Dr. Wertheim is the result of that evolutionary process and will be later described.

Freund in 1896 described an operation which he used to repair vesico-vaginal fistulae. He turned the uterus forward under the bladder leaving the fundus exposed in the vagina. Also he made a hole in the fundus at its cornu for drainage. It is reliably reported in many places that Wertheim was much impressed by this procedure.

According to J. St. George Wilson of Liverpool, Duhrssen in 1894, did the first of these operations and described it as "The operative cure of immovable and fixed retroflexed uterus." It was Freund's description in 1896—in which he brought the fundus down through the anterior fornix leaving the uterus exposed in the vagina—which impressed Dr. Wertheim. He was so struck by this type of procedure that he designed his operation as a modification of what Freund had done. While Freund used this method to cure vesico-vaginal fistula, Wertheim adapted the procedure and modified it for a much wider field of pathology of the female pelvis.

Watkins described five operations done in 1898 which he had developed from the work previously done by Duhrssen and Mackenrodt. It was not until 1906 however that Watkins published his technique, and he called it "The transposition operation for the cure of cystocele and prolapse," because the uterus is transposed from its original position to a new one. Wertheim called it the "Interposition Operation" because he placed the body of the uterus between the urinary bladder and the vagina. In view of the above information I am of the opinion that Freund and Duhrssen were the real originators of the idea behind this type of repair and that both Wertheim and Watkins made the pertinent modifications, almost

This paper was presented at the Kansas Chapter of the American College of Surgeons at El Dorado, Kansas.

simultaneously, which have made this procedure such a valuable adjunct to our surgical armamentarium for a selected group of women. The late Frank H. Lahey titled a paper he wrote in 1945, "Present Status of the Watkins-Wertheim Interposition Operation."

Selection of Patients

Our own experience as well as that of most surgeons who have used the Watkins-Wertheim interposition indicates clearly two salient points. The first is the necessity of careful selection of the patients on whom to use this operation, and the second is to know the technique.

The classification of uterine prolapse which has become classic is satisfactory: First degree when the cervix has fallen to the level of the ischial spine, second degree when the cervix is at the level of the labia, and third degree when half or more of the uterus is outside the vagina when the patient is standing. We find the Watkins-Wertheim operation applicable in women past the menopause, having a normal uterus with a large cystocele and any type of prolapse short of complete. If there is suspicion of endometrial pathology that question must be satisfactorily answered by the pathologist. If the cervix is diseased we either clear up the erosion with the pin point cautery a couple of weeks before the interposition, or at the time of the operation it may be amputated if it is so diseased that it might lead to further trouble later. We have not mentioned age, except post-menopause, because we do not deem it important since electrolyte balance can be maintained and anesthesiology has reached the era of safety it now enjoys. We have performed this operation on two well preserved women who were octogenarians. The results were quite satisfactory.

The selection of patients on whom to perform this operation is so important that some further discussion of its proper limitations seems pertinent. Certainly we hesitate, regardless of the size of the cystocele or extent of prolapse, if the patient is pre-menopausal, unless tubal ligation can be done. In two of our cases dysmenorrhea was increased by the interposition of the uterus between the bladder and the vagina because of the antelexion necessary. If there is any question of unresolvable pathology of either the uterus or cervix, vaginal hysterectomy is by all odds our choice.

Preparation

Since the peritoneum is to be opened, the operation begins with the cleansing of the vaginal vault. This is important enough to warrant comment. This technique has undergone numerous changes through the years and will probably be changed again. At

the moment we are using a 1:3000 bichloride of mercury vaginal douche the evening before and the morning of surgery. After the patient is under anesthesia the parts are scrubbed with Septisol, both inside and out, and then the patient is painted with Tincture of Merthiolate. We have thus far avoided infections and have not used antibiotics except when cystitis develops from wearing the retention catheter for four days postoperatively.

Technique

There was published in *Surgery, Gynecology and Obstetrics* in 1906 an article titled, "Extensive Cystocele and Uterine Prolapse" by Dr. Thomas J. Watkins which I wish to quote because of its clarity and brevity in describing his technique.

"After the usual preparation, the patient is anesthetized and placed in the lithotomy position. The uterus is dilated and curetted, if indicated. The anterior lip of the cervix is grasped with the vulsella; the anterior vaginal wall is incised in the median line from the cervix to within one half to one inch of the meatus univarius, care being taken not to injure the bladder. With the finger covered by gauze, the bladder is separated from the uterus by blunt dissection. After the bladder has been completely separated from the uterus, the uteros vesical fold of peritoneum will be observed as a thin, freely movable layer of tissue between the finger and the uterine body. The peritoneum is either perforated by the finger or is grasped with forceps and incised. The wound in the peritoneum is then stretched with two fingers sufficiently to allow the uterus to be delivered through the opening.

"One should guard against perforating the bladder with the finger, by exerting most of the pressure upon the uterus, and not upon the bladder wall. In cases where difficulty is encountered in separating the bladder from the uterus, the procedure can be much facilitated by making the separation to either side before it is made along the median line, as the attachment of the bladder to the uterus is firmer in the median line than at the sides. The anterior vaginal wall is now grasped on one side at the edge of the incision with an eight inch forcep, and separated from the bladder wall by means of gauze pressure. The same procedure is carried out on the opposite side. The extent of separation of the anterior vaginal wall from the bladder will vary in different cases. It should extend over most of the cystocele that comes into view, and should make the flaps sufficiently large to cover the uterus after it is brought into the vagina. The uterus is now delivered into the vaginal canal; this may be done by passing the finger over the fundus or over the top of one of the broad ligaments, or the fundus may be grasped with a

culter-forceps. One should never attempt to grasp the anterior wall of the uterus and deliver it through the peritoneal opening, as the diameters of this segment are much greater than the diameters of the fundus. A suture is now passed through the vaginal flap near the urethra, through the body of the uterus, a little posterior to the fundus, and brought out through the opposite flap, at a corresponding point. The placing of this suture should vary in different cases, the fundus should be drawn sufficiently downward to support the entire prolapsed bladder wall, but care should be taken not to draw it down so firmly that it may press upon the urethra and interfere with urination. This suture is tied, and another suture is passed parallel to it. Two or three such sutures are usually sufficient, as there is very little traction upon them. The remaining portion of the wound is now closed in much the same manner as a wound is closed in any part of the body. It is immaterial whether one uses an interrupted or a continuous suture. Chromicized catgut, we believe, is the best suture material. When the cystocele is exceptionally large, the redundant tissue of the vaginal flap should be excised."

Our own technique varies from this somewhat and can best be described by dividing it into steps or stages.

The first is to grasp the cervix with a double tooth tenaculum and after drawing it downward to make a circular incision halfway around, rather high up. The exact distance must be judged by the length and condition of the cervix. Also at this point we decide whether or not we will do a cervical amputation. As a general rule cervical pathology has been sufficiently rectified so that it can safely remain.

The second step is to find the line of cleavage between the urinary bladder and the redundant vaginal mucosa. By a combination of blunt and sharp dissection, also dividing it midline, this mucosa is freed to within a centimeter of the external meatus of the urethra. This dissection is carried lateralward sufficiently to allow ample replacement of the bladder.

The third stage is next begun by making a second circular incision around the cervix one centimeter below the original incision and raising it along with its bladder attachment off of the uterus. It is important at this stage to stay close to the anterior surface of the uterus and to continue until the thin fold of the peritoneum, as it reflects over the uterus, is plainly seen. We use a trowel retractor under the cervical band and bladder to facilitate the next step.

In the fourth stage we open the peritoneum near the fundus of the uterus. This is sometimes easily accomplished with the finger covered with gauze but if not it should be grasped with a long forcep and cut with scissors. There are several ways to deliver the

fundus out into the vagina. Some use a tenaculum, some a silk or gut suture, and after drawing the fundus down placing another above until delivery is completed. Years ago we acquired two long handled, blunt pointed button hooks and with these we are able to do this delivery with the least damage to the tissue involved. This we are sure is important since bleeding from wounds in the uterus can be troublesome and sometimes produce hematomata which retard or prevent healing.

The fifth stage consists of two important sutures of chronic No. 2 catgut. We suture the cervical band with an in-and-out stitch fastening it with its bladder attachment about midway on the posterior uterine body. The second stitch goes through the vaginal mucosa one centimeter below the external meatus of the urethra then through the uterus just anterior to its cornu and out through the opposite mucosa. These two sutures hold the bladder in place. It has been pointed out by several anatomists that this twisting of the broad ligaments has a decided shortening effect. I suspect this is true because of the almost universal success of the operation when properly performed.

The sixth stage is now accomplished which is to resect all of the redundant vaginal mucosa and then to close these over the uterus, the shortened transverse portion of these flaps being sutured to the cut edge of the cervix.

The seventh and last stage is a careful and adequate perineorrhaphy. The technique of this operation is too well known to need detailed amplification. A surgeon must be certain to uncover and unite both leaves of the levator ani muscle if he has hope of success. When this is done there is a pelvic floor which will hold for life. There remains a usable vagina which in many cases is meritorious.

As nearly as I can determine there is now only a slight difference between the Watkins and Wertheim techniques. Wertheim buried the cervical ring which supposedly carries its bladder attachment onto the posterior wall of the uterus. Watkins, on the other hand, elevated the mucosa from the bladder and that organ off the uterus, which he then turned forward under the bladder and there fastened it, as done by the Wertheim method.

I do not mean to imply that this is the only method of repair for cystocele and prolapse. Vaginal hysterectomy with closure of the broad ligaments under the bladder plus a perineorrhaphy has a definite place. However, the occurrence of subsequent enterocele, according to many of the authors reporting large series of cases, is much greater than where the interposition operation can be used. My effort here is to remind surgeons of its usefulness and to refresh memory as to the technique.

Mental Health Clinic

Growth and Development—A Sequel

BURRITT S. LACY, JR., M.D., RIX D. SHANLINE, M.S.W.,
and WILLIAM R. DURKEE, M.D., *Manhattan*

IN THE MAY, 1959, issue of this JOURNAL, Chamberlin¹ described the founding of the Riley County Mental Health Center as "the first cooperative endeavor of the state and community" of its type in Kansas. Dr. Chamberlin highlighted the part played by the State in lending medical staff from state institutions to get the Center into operation while the community was still unable to hire a medical director for the Center. The chief purpose of the paper is to report the fact that this community psychiatric clinic, which initially depended on the support of personnel provided by the State Department of Institutions, has in its third year of operation come to stand almost entirely on its own feet, bringing in nearly sufficient fee income, in addition to the allotment of County tax funds, to pay its own staff.*

Staff Additions

Since the time Chamberlin's article was written, the Clinic has added to its original staff of a psychiatric social worker and secretary and has accumulated almost two years' further experience with rather striking growth in its caseload. The Center was able to hire a full time psychiatrist in September of 1958, allowing Topeka State Hospital to recall its staff psychiatrist who had been on loan one day a week to the Center. This step was made possible by the action of the Mental Hygiene Division of the State Board of Health, which allotted to the Center sufficient U. S. Public Health funds to pay the psychiatrist's salary for an initial six months. As of September, 1959, the loan of the staff psychologist one day a week from the State Hospital also ended and the Center was authorized by its Board of Directors to employ a full time clinical psychologist. The only member of the staff at this time (May, 1960) not paid out of the Center's own income is a resident psychiatrist from the Topeka State Hospital Outpatient Department, who is assigned here one day a week as an elective part of his training.

¹ Respectively, psychiatrist, social worker, and Vice-President of Board of Directors of Riley County Mental Health Center.

* As described by Chamberlin, the 1957 Kansas Legislature authorized a quarter mill levy, under certain specified conditions, to support a Mental Health Clinic.

Functions of the Center

At this point we can cite some figures to show how such a community agency actually functions as it becomes more nearly self-sufficient. Afterward, we would like to point to some of the problems which need to be considered.

Table I shows the growth of the Center in terms of new cases referred, interview hours with patients, size of budget, and percentage of budget represented by fee income. It points both to a greater use of the Center by the community and to the increasing ability of the Center to offer services because of the additional full-time staff. Some other items on this table show that a little less than half of the new cases are seen for two interviews or less, amounting to a screening, counseling, or consultative service, while somewhat more than half are seen on a more extended basis, meaning more thorough evaluation of cases and frequently definitive treatment. Further items tabulated point to the use of the Center's services by members of the medical profession, who refer about 30 per cent of the new cases seen at the Center and also account for an increasing number of consultation visits made by the Center's psychiatrist to the local hospitals.

An important aspect of the services of such a community clinic is the over two hundred hours of "community service," which includes talks to civic groups on mental health subjects, in-service training for professional groups in the community, consultations, and conferences with other agencies, and participation in community planning groups. At the present time a regular consultation service on a fee basis is being utilized by one of the local schools and some preliminary conferences with staff of other schools have taken place. Finally Table I demonstrates the fact that a third of the cases served at the Center emanate from outside Riley County, chiefly from the neighboring counties to the West and North.

We now want to describe the structure and setting within which the Center is growing. The Center has never had any absolute restrictions pertaining to clientele, either as to type of problem, age of patient, legal residence, or income level. Since it is supported

partially by taxes from Riley County, there has been a minimum charge for patients residing outside of Riley County, this minimum charge being approximately the actual cost of the service rendered. The case material has varied from mild, acute states of anxiety, requiring only a few hours of counseling, to severe mental illnesses, occasionally overt psychoses, sometimes referred to a mental hospital.

It is difficult to offer figures defining the amount of time devoted to treatment as opposed to time devoted to screening and diagnosis. In many of the briefer contacts with patients, a thorough diagnostic evaluation cannot be completed. Some published studies² have pointed to clearly significant effects on life adjustment resulting from even one or two interviews and our own impression from scattered reports on such patients has usually been favorable. Approximately ten per cent of our new cases go ahead with a relatively extended psychotherapeutic investigation of their problems, beyond the evaluative process of the first five to ten sessions. Up to this point treatment has been available without significant delay or limitation. A few patients have received psychotherapy over one or two years although the bulk of the patients discontinue treatment in less than six months.

It should be mentioned that family physicians are routinely contacted by the Center's staff after a patient has been evaluated, in order to give them some impressions in regard to the patient's emotional status and the recommendations for treatment. The psychiatrist and family physician may then confer regarding the need of a very anxious patient for some sedation on a temporary basis, while the sources of the anxiety are being investigated in interviews. This "team approach" to such moderately disturbed patients has quite frequently been effective and possibly avoided hospitalization for a number of patients. When a case is closed, the referring agency is contacted again to report this fact and to confer about the patient's present status, including consideration of prognosis or need for further treatment.

Organization of the Center

Of interest to citizens' groups of other communities wishing to organize such a psychiatric facility would be the administrative organization and financial aspects of this operation. Dr. Chamberlin's article gave important background material in this area. The Center was originally organized under a Board of Directors appointed by the City-County Board of Health and composed of representatives from the City Commission, County Commission, County Mental Health Association, City School Board, and County Medical Society. This group then selected further members from the community at large, up to a total of eighteen, and created several hard-working committees. The local Association for Mental Health, the parent organization of the Center, together with the Center's own board of directors, has been chiefly responsible for the development of the Center. The two organizations have kept the community informed of the Center's services and needs through the local press and radio, with increasing evidence of awareness and interest on the part of citizens, for instance, by the voluntary activity of several civic groups in redecorating the Center's offices recently, as well as by frequent requests for the staff to speak at meetings. A definite manual of policies and procedures has been adopted by the board, designating working conditions, leave policies, salary schedules, etc.

The original financial backing was obtained through donations and a grant from the County Welfare Agency. Later the quarter mill tax was levied by the County and recently fees have become a major addition to the Center's income. A grant from U. S. Public Health funds through the State Board of Health has been vital in filling financial gaps during the Center's growth. In the hiring of a psychiatrist, a definite budgetary problem was created and a continuing deficit exists even though the present fee income represents a rather high proportion of total income for a community clinic. At present, fee income and utilization of staff time are approaching a maxi-

TABLE I

| | 1957 | 1958 | 1959 |
|---|-------------|----------|----------|
| New Cases | 94 | 121 | 180 |
| Interview Hours Actually Utilized | 530 | 1,577 | 2,170 |
| Annual Budget | \$13,512 | \$17,480 | \$28,755 |
| Portion of Budget Covered by Fees | 16% | 38% | 55% |
| Portion of Cases Receiving Brief Services (two hours or less) | unavailable | 53% | 48% |
| Proportion of New Cases Referred by Physicians | — | 31% | 27% |
| Hospital Consultations | 0 | 4 | 12 |
| Community Service Hours | 214 | 213 | 245 |
| Proportion of New Patients Residing Outside Riley County | — | 31% | 34% |

num, even with the donated time of psychiatric residents.

Since the income from the quarter mill tax is essentially fixed, it has become clear that the Center needs a third source of income in addition to fees and taxes, in order to continue to make psychiatric services available to lower income groups and have time available for other community services. Our fee income has been inflated by the considerable number of patients in higher income groups (there has been no limitation as to income in accepting patients for treatment) and by the large percentage of non-resident patients with fees at a cost level or above. One careful study³ of recent origin demonstrates that individuals with annual incomes below five thousand dollars, as well as families with somewhat higher incomes but proportionately larger numbers of children, are unable to pay the high costs of extended psychiatric services without essentially total subsidization. It would appear that our present fees are a hardship for many patients, particularly for the middle income groups, when extended treatment is needed. One recent change in our fee schedule has been designed to add a maximum to our income with a relatively minimal burden on the individual patient: namely, establishment of a minimum fee for the first interview equivalent to the cost of the staff time involved. Unless a third source of income can be found (United Fund is one possible source), it will probably be necessary to charge, as a minimum, the actual cost of the services involved for the initial diagnostic evaluation of a case, approximately five to ten hours.

Conclusions

Along with the problem of balancing the budget and adding a psychologist to the clinical team, the board and the staff of the Mental Health Center are especially concerned with encouraging utilization of consultation services to a greater extent by the schools, as well as by the courts, police, county welfare, and other community agencies. Here it should be noted that about one-fourth of our patients are under the age of nineteen, probably a rather low percentage of children for such a community guidance center. This percentage of children is expected to increase when the results of the present work with schools has demonstrated its value to the school administration. We feel that the community would obtain the greatest returns on its substantial investment of the time and effort of many citizens, as well as of tax funds, if the special skills of the Center's staff were used in joint planning with these other community agencies rather than simply in offering treatment for individual and family problems. By its geographical location alone, the Center has saved the citizens of the county, as well as non-resident patients, a trip of over 50 miles to the nearest psychiatric facilities. The total annual

savings simply in transportation costs (estimated at seven cents per mile) is approximately \$10,000 for the Riley County residents alone. This figure compares favorably with the \$11,500 of tax funds invested annually by Riley County. The fact that such a large fraction of the patients do come from neighboring counties where psychiatric services do not exist points to the possibility of organizing a mental health center as a joint project of several counties. There is a tri-county pattern established in some states, such as Minnesota, and now being considered in some areas of Western Kansas.

Kansas now has several community mental health centers, most only partially staffed, of which the Riley County Mental Health Center is one of the most recent. It was created by a cooperative effort of state and community of a type unique for Kansas. We have reported on the progress made by the Center in its first three years and touched on some of the present problems facing the Center as the staff and board of directors look to the future.

Riley County Mental Health Center
Box 793
Manhattan, Kansas

References

1. Chamberlin, M.D., Cecil R.: Mental Health Clinic: "The First Cooperative Endeavor of the State and Community" of this type, *Kansas Medical Journal* LX, 6:220-21, May, 1959.
2. Shyne, Ann W.: "What Research Tells Us About Short-Term Cases in Family Agencies, Social Casework, XXXVIII, 5:223-231, May, 1957.
3. Guiding Principles for Fee Charging in Voluntary Psychiatric Outpatient Clinics: The Community Council of Greater New York, 1958.

Intracranial Trauma

(Continued from page 50)

lepsy? The fact that he was a federal compensation case made this question even more pertinent. Arteriograms finally solved the issue by revealing (*Figure 11*) a lesion deep in the brain, actually outlined by the dye. This proved at operation to be a brain abscess, unrelated to trauma, which has been totally excised and the patient is now well.

Conclusion

Carotid arteriography thus represents a distinct advance in the management of intracranial trauma, and has become indispensable to us at the University of Kansas Medical Center. Perhaps I should close by honestly confessing that the main reason I like this test, is that formerly one sat up all night watching a head injury, sweating it out, worrying about whether or not an intracranial clot was developing. Now, we simply squirt the dye, and then go home to bed for a good night's sleep!

University of Kansas Medical Center
Kansas City 12, Kansas



Tumor CONFERENCE

Carcinoma of the Larynx

Edited by JOHN D. WARKENTIN, M.D.

Dr. Klionsky (Moderator): Today we will present two illustrative cases of carcinoma of the larynx. They will be discussed as a unit. May we hear the histories, please?

Dr. Wurster: The first patient is a 55-year-old man with a history of hoarseness for two months. He consulted a physician who examined his larynx and biopsied a mass on the left vocal cord. Pathologic diagnosis was squamous cell carcinoma, and the patient was referred here for treatment. When he was first seen in the ENT Clinic, an indirect laryngoscopy revealed a mass on the anterior third of the left true vocal cord. This did not appear to cross the anterior commissure or to involve any other part of the larynx. The rest of the physical examination was completely normal.

The second patient is a 56-year-old man. Five years ago, following a period of hoarseness, he had had his left vocal cord removed because of carcinoma. Following the operation, his hoarseness continued due to the loss of one vocal cord, but he did retain his voice. His clinical condition remained unchanged for four years, but during the past year he developed progressive loss of voice and progressive dyspnea on exertion. By the time he was first seen in the clinic here, even mild exercise, such as walking down the hall, made him faint and extremely short of breath. Indirect laryngoscopy disclosed a ragged, fungating tumor partially filling the supraglottic area bilaterally and markedly reducing the airway. The epiglottis and arytenoid cartilages were not involved. The true vocal cord could not be visualized. The remainder of the physical examination was within normal limits. A tracheostomy was done immediately to relieve the obstruction of his airway.

Dr. Klionsky: Before we proceed with the discussion of these cases, I would like Dr. Proud to review the anatomy of the larynx giving the more common sites of involvement by tumor. How does the location of the lesion affect the choice of therapy?

Dr. Proud: The larynx is lined by pseudostratified ciliated columnar epithelium with the exception of the true vocal cord which is lined by stratified squamous epithelium. It is on the true vocal cord that squamous cell carcinoma, the most common cancer of the larynx, usually arises.

The preferred treatment of carcinoma of the larynx will be determined not only by its location but also by its size and limitation. It is an oft repeated truism that an early diagnosis of cancer affords a good chance for cure; a late diagnosis reduces the chance and dictates more radical and mutilating treatment. The two patients presented today give a good illustration of this principle.

The patient is fortunate if his laryngeal carcinoma occurs on the true cord, because here it usually develops on the approximating surface and consequently the presenting symptom of dysphonia occurs early. The reason for this is that the rough, expanding lesion will hold the vocal cords apart on phonation and allow much air to escape, thus warning the patient that something is wrong. As long as the carcinoma is confined to one vocal cord, as in the first patient presented today, and has not extended into the ventricles, the false cord, the supra or infraglottic areas or the epiglottis, it is considered intrinsic and treatment by almost any of the methods employed today will be successful in ninety per cent or more of cases. For such a localized lesion we prefer to do an operation known as the medial thyrotomy or laryngofissure. In this operation the thyroid cartilage is divided in the midline, and the involved cord, together with the internal mucoperichondrium, is elevated from the underlying cartilage and excised. Of course, this will leave the patient with a variable degree of hoarseness. The functional result depends on the healing process. If the scar tissue which is laid down to replace the excised true cord is smooth, it may effectively function as a new cord and allow the opposite cord to come over and make good contact.

In some cases, however, the scar tissue is irregular and ragged and so is ineffective as a functional cord, leaving the patient quite hoarse. The average result is an abnormal but still acceptable voice. This operation salvages the patient's larynx; he is able to eat, drink, talk, and breathe normally and is in no way incapacitated.

If, however, the diagnosis is delayed until the carcinoma has crossed over to the opposite cord or even extended beyond the true vocal cords, as it had in the second patient presented today, the tumor must be considered extrinsic and requires a more radical approach. An anterior hemilaryngectomy may be done in selected cases, but this operation is unpopular with most surgeons. In most cases a wide field laryngectomy is indicated. In this operation the larynx, together with its extrinsic muscles, all of the strap muscles, the epiglottis, hyoid bone, the epiglottic space and sometimes even a portion of the pharynx or the base of the tongue, is removed. If the tumor is largely confined to one side but quite extensive, a combination of wide field laryngectomy and radical neck dissection en bloc is carried out. In the radical neck dissection the sternomastoid muscle, the jugular vein and all of the areolar and glandular tissue along the carotid sheath are removed along with the larynx as one specimen. When this is done, the pathologist will frequently find nests of metastatic carcinoma in the lymphoid tissue even though no enlarged nodes were palpable pre-operatively.

If the tumor extends over too far into the piriform sinus or involves the epiglottis or the base of the tongue, it becomes inoperable and irradiation then remains the only mode of treatment. Even in these cases the prognosis is not entirely hopeless. For example, one of our patients was first found to have inoperable carcinoma of the larynx at the end of World War I. He received radiation therapy and still shows no signs of recurrence.

A carcinoma may also start on the false vocal cord, the epiglottis, the arytenoid cartilage or some other area where it fails to produce symptoms until it has become large enough to obstruct the airway or until it encroaches upon the vocal cord to result in hoarseness. Because of the late symptoms, of course, the prognosis in these patients is much worse than in those with cancer arising on the vocal cord itself.

A Student: The second patient apparently developed a recurrence within four years after his laryngofissure operation. Evidently he was not followed too closely since the tumor reached such a large size. How long should a patient be followed after operation to be assured of a cure?

Dr. Proud: We do not like to speak of a five year cure as is frequently done for cancer in other parts of the body. A five year cure should not be considered

a cure at all but simply an arrest. For this reason we follow our patients for as long as they or we last. We see them every six months at first and every eight months thereafter.

Dr. Klionsky: Dr. Tice, will you discuss the controversial question of primary radiation therapy for carcinoma of the larynx?

Dr. Tice: I consider it a general rule that if a malignant tumor can be removed completely and safely by surgical means, then that is the preferred treatment. This is true also of carcinoma of the larynx even though a laryngofissure operation will leave a residual hoarseness. For carcinoma of the larynx we give a dose of 5,000 roentgens over a period of six weeks and hope that this dose will cure the patient. However, this therapy is not without complications. The patient suffers a severe radiation burn to the skin of his neck, a dry mouth and difficulty in swallowing, but as Dr. Proud has indicated, the otherwise hopeless cases are sometimes cured by such harsh treatment. Even in more advanced but still operable cases I feel that radiation therapy might be preferred over a radical, mutilating operation. We are following a number of patients who have had radiation therapy for inoperable carcinoma five to ten years ago and also some who chose radiotherapy instead of a radical surgical procedure for advanced but operable tumor. The skin over their necks is atrophic, shiny and fibrotic, but they are alive and happy and have retained their voice.

Dr. Klionsky: Now that we have heard the complications of irradiation, what are the complications of operative treatment?

Dr. Proud: There are no particular complications of laryngofissure other than those of any operation on the air passages under a general anesthetic. A laryngectomy, however, does present some problems of rehabilitation. The patient will now forever have to breathe through a tracheal stoma. Sometimes the stoma will constrict because of excessive scar tissue and then the patient must wear a silver tube in the opening in order to keep it patent. Of course, he can't swim. Furthermore, any physical labor such as lifting which requires a building up of intrathoracic pressure is difficult because the patient can't close his glottis. He cannot smoke and so is prevented from inspiring the cigarette smoke into his lungs to start another carcinoma there. He is also left without a voice and must learn esophageal speech. In order to do this, the patient swallows air and traps it in his hypopharynx from which he learns to expel it in spurts and to form words with his tongue. There are also some mechanical gadgets, such as the Bell telephone quacker, available. The sound from such instruments is not pleasant, but they may be used. How-

ever, with determination this handicap can be very adequately overcome.

Dr. Klionsky: Dr. Helwig, will tell us what the natural history of the untreated lesion is?

Dr. Helwig: Carcinoma of the larynx is predominantly a disease of men. The incidence in women ranges in different series from three to ten per cent. This tumor has not shown the increase in women in recent years that bronchogenic carcinoma has.

The vast majority are squamous cell carcinomas. There are three important precursors, namely papilloma, leukoplakia and chronic laryngitis. The tumors are extremely slow-growing and tend to remain localized to one cord for a long time for several reasons: firstly, there is practically no lymphatic supply to the cord and secondly, the blood supply to the cord is meager. There are many cases that have survived for ten years or more with no treatment at all. Since most of them are located near the anterior commissure, their first extension frequently is to the opposite cord thus adding to the seriousness of the disease. As long as the carcinoma remains intrinsic, distant metastases outside of the larynx are extremely uncommon.

Dr. Klionsky: Dr. Helwig, will you tell us of the deep historic significance of this lesion?

Dr. Helwig: I assume you are referring to the "wart that rocked the world." As I roughly remember the story, the Crown Prince of Germany, who was soon to become the Kaiser, became hoarse and so was examined by von Bergmann, who was the leading German surgeon of the day. He made a diagnosis of cancer of the larynx but in order to be doubly sure consultation was obtained from a sore throat specialist, but this expert opined that the Crown Prince did not have cancer. So von Bergmann took a biopsy and sent the specimen to an eminent pathologist named Virchow who also said it was not cancer. However, the Crown Prince was not getting any better, and shortly after he ascended to the throne another biopsy was taken. Von Bergmann again said this was cancer and again was overruled by Virchow who diagnosed inflammation. Well, the Kaiser was on the throne for only a few months before he died of his carcinoma of the larynx. The result was that his son, Kaiser William, ascended to the throne and immediately dropped Bismarck as his chancellor and then proceeded to make arrangements to start World War I. And so the history of the world was changed by one of these little warts, since if von Bergmann had been allowed to take out the old Kaiser's larynx there would never have been a World War I, and if there hadn't been a World War I there surely wouldn't have been a World War II.

Dr. Klionsky: Would the pathologist today have

the same difficulty with diagnosis that the Kaiser's physicians had?

Dr. Helwig: Yes, he could, but the surgeons today take their biopsies with much more skill than they did in those days. A diagnosis cannot be made on inadequate material. Modern surgeons recognize this and do not expect a diagnosis from a minute scrap of tissue.

Dr. Klionsky: What are the plans for further treatment and follow-up of the patients presented today?

Dr. Proud: The first patient has undergone a laryngofissure operation. We have done a wide field laryngectomy on the second patient. There were no palpable nodes in this case and a neck dissection was not done since the tumor involved both sides of the larynx and we didn't know which side to attack.

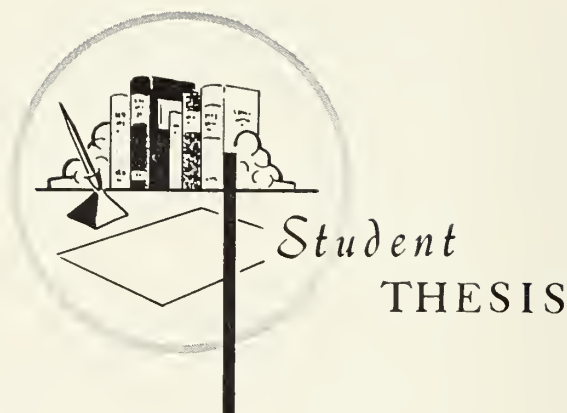
Dr. Klionsky: Dr. Helwig, may we see the specimens on these cases?

Dr. Helwig: The gross specimen from the first patient consisted of a single vocal cord. The mucosa over its anterior two-thirds was white, thickened and more rigid than normal. Microscopically, the epithelium in this area is proliferating, irregularly thickened and parakeratotic. In places the epithelial cells are atypical, disoriented and dyskeratotic. In the deepest portions the basement membrane is broken and small clusters of tumor cells are invading the underlying stroma. (Figure 1) This is a squamous cell carcinoma.

(Continued on page 69)



Figure 1. Early invasive squamous cell carcinoma arising in an area of leukoplakia. Hematoxylin and eosin. $\times 70$.



The Interpretation and Use of the Serological Tests for Syphilis

J. ALAN SANDERS, M.D., *Wichita*

THE FINDING OF A REACTIVE serology on routine testing done as part of hospital admission procedures, pre-natally, pre-maritally, and as part of a diagnostic workup, is a relatively common occurrence. Since the introduction of penicillin as such an efficient and potent agent in treating syphilis, it now frequently takes longer to make a correct diagnosis than it does to effect a cure, once the diagnosis is established. The use of penicillin has been a mixed blessing, since its ease of administration has decreased the diligence of the physician in his pursuit of a correct diagnosis before instituting treatment. Some patients have suffered psychic trauma by the diagnosis and treatment of non-existent disease carrying social stigma.

In recent years, the significance of the biological false positive (BFP) reaction has been given more and more recognition. The relative increase in the BFP reaction is emphasized in noting the decrease in syphilis in the United States over a period of years and analyzing the effects of this decrease on the occurrence of the BFP reaction on routine serological tests. Such an analysis reveals a sharp decrease in the incidence of syphilis between 1941 and 1955. This decrease is primarily in the early categories of syphilis; hence the ratio of latent syphilis to all syphilis

has increased. If we assume that the number of acute and chronic BFP reactions has remained constant, then the percentage of false-positive reactors in the group with positive serological tests for syphilis (STS) will be proportionately higher. Thus, the necessity of differentiating the patient with latent syphilis from the BFP reactor becomes increasingly important, since both groups are relatively larger in our population. In 1943, it was estimated that approximately 40 per cent of white patients in the upper socioeconomic and educational levels with reactive serological tests for syphilis in the absence of clinical signs of syphilis, were BFP reactors. This percentage is likely to be increased as the incidence of syphilis is further reduced. The significance of the BFP reaction, aside from its relative increase, will be discussed more fully in a later section.

The purpose of this review is to discuss the problems encountered by the clinician when confronted by the patient with a reactive serology. The discussion is initiated by a review of the different serological tests for syphilis, the emphasis being placed on the basic concepts embraced in the different tests rather than on details of technique. This is followed by a discussion of the implications of the reactive serology under various combinations of circumstances. It is felt that the general principles outlined here may be of some value in arriving at a correct diagnosis and a program of follow-up management of the patient with a reactive serology.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Sanders is now at the Wesley Hospital in Wichita.

The Nature of the Serological Tests for Syphilis

The standard serological tests for syphilis. In 1906, Wassermann, Neisser and Bruck published their report announcing the development of a serodiagnostic reaction for syphilis. Within a few years numerous reports appeared demonstrating that the reaction was not specific for syphilis, but that it occurred occasionally in patients with non-treponemal diseases. Many attempts were made to improve the specificity of the Wassermann reaction. The various modifications of the original reaction were introduced as new tests bearing the names of their originators, such as those of Kolmer, Kahn, Eagle, Kline, Mazzini and many others. The most important development during this period was the introduction of a purified cardiolipin antigen by Pangborn, working in the Venereal Disease Research Laboratory (VDRL) of the United States Public Health Service. After World War II this modified test gained almost universal acceptance as the standard serological test for syphilis, replacing the various other tests used for this purpose. Nevertheless, the VDRL test is relatively sensitive and is not specific for the treponemal diseases. It is now clear that there are at least two antibodies that appear in the sera of individuals with syphilis: (1) the non-specific lipid antibody (reagin) detected in the standard tests; and (2) the specific antibody detected in the Treponema pallidum immobilization (TPI) and related tests. The antigen employed in the conventional tests is not that of *T. pallidum*, but a lipoidal extract of beef heart.

Two major techniques are employed in demonstrating the presence of the serum reagin. In the flocculation tests, the reaction of the non-specific lipoidal antigen with the reagin is directly observed on a glass slide or in a test tube. The Kahn, Kline, VDRL, and Mazzini tests are all modifications of flocculation tests. The complement fixation tests (represented by the Wassermann, Eagle's modification of the Wassermann, and the Kolmer test) measure the ability of the patient's serum to "fix" complement which is supplied from an external source. If the reagin is present in the patient's serum, the complement will not be available to lyse red blood corpuscles when these are added to a portion of the serum under test.

Quantitative serological tests for syphilis have assumed an increasingly important role in the management of syphilis since the advent of rapid therapeutic measures. Quantitative reporting is not similar for the many different tests for syphilis as the "units" of one testing procedure may have no constant relationship to the "units" of another. A quantitative test merely determines the maximum dilution in which a particular serum still gives a positive reaction. A pa-

tient with a 1:16 dilution is no less infected than one whose serum is reactive in a dilution of 1:256. Undue emphasis has been placed on pseudo-quantitative reporting (1-plus, 2-plus, etc.). The physician is often lulled into a false sense of security if, on serological re-examination, the laboratory reports a decrease in the reading from 3-plus to 1-plus, and again he and the patient may be unduly concerned if the reading rises from 1-plus to 3-plus. One 4-plus serum may be positive only in a dilution of 1:2 while another 4-plus may continue to give positive readings in a dilution of 1:256. Obviously the latter serum is 128 times more "positive" than the first serum yet both were reported as 4-plus or "strongly" positive. The chief value of quantitative tests lies in the fact that the physician can more adequately evaluate the serological response of his patient to a particular treatment schedule from the very onset of therapy throughout the period of clinical and serological follow-up. Repeated quantitative tests may be of value:

- a. As a guide of response to treatment.
- b. To differentiate between pre-natal syphilis and "syphilotoxemia" (a reactive infant serology due to passively-transferred antibodies).
- c. To differentiate between true and false positive positive serological reactions.

The various standard tests for syphilis vary considerably in their sensitivity. By sensitivity is meant the readiness with which a reactive antibody is detected in the patient's serum. This variability is not dependably consistent, however, for one test may prove to be sensitive in one case; whereas another type of test will be more sensitive with another patient's serum. "Persistence" denotes the degree in which a certain type of test remains reactive after a patient has been adequately treated for syphilis.

Mass Screening

The usefulness of the standard tests for syphilis now lies in mass screening tests and in following quantitative titers once the diagnosis has been established by more specific tests and therapy has been initiated. Andujar and Mazurek report a new reagin test for syphilis employing plasma instead of serum. This test was made possible through Portnoy's development of a method of suspending the VDRL emulsion in aqueous choline chloride instead of alcohol so that it is no longer necessary to heat the serum or plasma as had formerly been so. This test, known as the plasmacrit (PCT) exclusion test can be run on the plasma from a centrifuged microhematocrit tube and requires only minutes for the complete determination. The convenience and simplicity of such a procedure would seem to make it highly de-

sirable in mass screening campaigns and routine testing.

The Treponema pallidum immobilization and related tests. Many investigators had advanced the theory that a specific antibody produced against virulent *Treponema pallidum* is present in the serum of patients with syphilis, but this could not be established because it was impossible to keep the treponemes alive *in vitro*. In 1947, Nelson, while attempting to culture *T. pallidum in vitro*, discovered the immobilizing antibody. Since that time this test has become an extremely useful tool in establishing a reasonably definite diagnosis of syphilis. Unlike reagin, which may appear in response to a variety of conditions, the TPI antibody develops only in response to the treponematoses.

A temporal difference in the appearance of the two different types of antibodies has been noted. When living organisms are injected into patients who have had syphilis, there is a rise in the TPI antibody prior to a rise in the reagin titer. The opposite response is observed when live spirochetes are injected into normal individuals (no history of syphilis)—reagin is detectable before TPI antibodies appear. Reagin has not been shown to have any effect on the spirochete. It appears earlier in the blood than does the TPI antibody, but after treatment of early syphilis or latent syphilis, the TPI test may remain positive long after the standard tests have become negative. The TPI test is, therefore, a better indicator of the immunological status of the luetic patient, after the test has once become reactive. In accurately interpreting the TPI test, one must always remember that if treatment is given in primary or early secondary syphilis, the antibody may never develop or the test may become negative if treatment is instituted very early. In spinal fluid, a positive TPI is diagnostic of neurosyphilis, but a negative TPI can be found in the presence of unquestionable signs of disease. It should also be remembered in the management of newborns that passive transfer of the TPI antibody to a baby may give a positive TPI until the child is six months old.

With the subsequent development of the *T. pallidum* immune adherence (TPIA), *T. pallidum* agglutination (TPA), and *T. pallidum* complement fixation (TPCF) tests, many laboratories may find it practical to perform a specific procedure of this type. These newer tests offer advantages over the *Treponema* immobilization procedure in that the killed treponemes or extracts thereof are used as antigens and may be made available to smaller serologic laboratories that do not have adequate facilities to cope with the technically more complicated immobilization test.

The Reiter protein complement fixation (RPCF) test. The Reiter treponeme was originally cultivated

from the spinal fluid of a patient with neurosyphilis. It is easily grown *in vitro*, but is incapable of causing syphilis in man or rabbit. D'Alessandro of Palermo extracted an antigen from this organism which offers the promise of stability, hence ease of handling, and at the same time cheapness due to simplicity of production. The cost is said to be less than one cent per test. The Reiter antigen is not held to be specific beyond the ability to identify antibodies to the treponemas as a group without regard to strain; however the tests employing treponemal antigens detect an antibody that differs from the reagin that causes a positive reaction in the older types of procedures. Antibody produced by Reiter protein has been demonstrated to be reactive to Reiter protein and to protein of virulent *T. pallidum* obtained by the same antigen fractionation methods. Reiter protein did not produce antibodies detectable with the TPCF and VDRL tests. Adsorption of serum with protein antigen of virulent *T. pallidum* removed reactivity to both the *T. pallidum* cryolysis protein complement fixation test (TPCP) and the RPCF tests, but not the reactivity of TPCF and VDRL tests. The TPCP test employs an antigen composed of a protein fraction obtained from virulent organisms and differs from the TPCF antigen in possessing a greater degree of specificity. These findings, by demonstrating a serologic kinship of a protein moiety of virulent and avirulent treponemes, strengthen the position of the test specificity of the RPCF test in the serology of syphilis.

Studies carried out by DeGroat and Miyao revealed that the RPCF test is free from biological false positive reactions, justifying the conclusion that this test will prove to be of inestimable value in clarifying the status of cases where a BFP is in question. It appears that the specificity of the RPCF is genuine and unrelated to sensitivity and the sensitivity is about 20 per cent less than that of the cardiolipin complement fixation tests.

Implications of the Reactive Serology

When the patient with a reactive serology is encountered, the clinician must conclude that: (1) the patient has active syphilis, including congenital syphilis; (2) the patient has had syphilis and has been adequately treated; or (3) the finding may be a biological false positive reaction.

The above categories will be discussed in the following paragraphs. No attempt will be made to discuss either neurosyphilis or cardiovascular syphilis in any detail as this would fall beyond the scope of a paper of this nature. A brief discussion of the special cases of the pregnant patient with a reactive serology and the newborn with a reactive serology is included.

The patient with active syphilis. In the natural course of syphilis, the chancre, if it occurs, appears

about three weeks after infection. The serological tests for syphilis are negative at this time. One week later the standard tests become reactive and still later the TPI test becomes positive. In approximately 50 per cent of the primary cases, the TPI test will be positive at some time. Secondary syphilis appears in about nine weeks. By this time all of the standard tests are reactive and 90 to 100 per cent are reactive to the TPI test.

Latent syphilis is defined as that stage of the disease found in a patient who is asymptomatic, has a proven reactive blood serological test for syphilis, presents neither clinical nor other laboratory evidences of syphilis after thorough physical examination, and has a cerebrospinal fluid which, on examination, is completely negative. If the disease is of more than two, but less than four years duration, it is called early latent. If it is more than four years duration, it is designated late latent. In arriving at a diagnosis of latent syphilis, a complete spinal fluid study should be done. This analysis should include a cell count, total protein determination, qualitative globulin determination, quantitative serology, and a colloidal gold test.

The patient with previous adequate treatment for syphilis. Although it has been widely publicized over the past 25 years that no treatment will reverse a reactive STS to non-reactive for many years in most patients treated for late syphilis, this fact is too frequently ignored in the management of syphilis and too many patients are re-treated solely because of a persistent STS. If possible, the following information should be obtained from every patient suspected of having syphilis:

- (1) History of a previous STS: Were previous tests positive or negative; where and when were they taken?
- (2) History of possible previous treatment of syphilis.
- (3) History of possible spinal fluid examinations.
- (4) History of spouse's STS in married patients.
- (5) History of possible exposure to syphilis.

It is generally agreed that the persistence of a reactive STS does not necessarily indicate the persistence of a syphilitic infection. There are several factors which seem to influence the length of time required to attain seronegativity. The older the disease in the patient at the time of treatment, the longer the treponemes are present, the longer it takes for the body cells to stop forming antibodies. By the same token, initial high titers require more time to reach seronegativity. Immunological responses naturally vary with different patients and with the sensitivity of the serological test employed; the more sensitive pro-

cedures will require a longer time to reach seronegativity.

The biologically false positive reaction. The term, "biologically false positive reaction," is that used to denote the reactivity with lipoidal antigens and cardiolipin antigens of sera from patients who do not have syphilis or other treponematoses. No more is known of the actual mechanism causing a biologically false positive reaction than is known of the mechanism of the true syphilitic reaction. The theory that alterations in serum protein fractions may be an etiological factor has never been substantiated. Whereas such diseases as lupus erythematosus and lymphogranuloma venereum are associated with hyperglobulinemia and biologically false positive reactions, other diseases such as multiple myeloma show hyperglobulinemia without BFP's. Moreover, in lupus erythematosus there is no correlation between the frequency of BFP reactions and hyperglobulinemia. Many cases show positive BFP's with normal protein values; whereas others with altered serum proteins do not manifest BFP reactions.

Many disease processes have been associated with the BFP reaction. Such reactions are frequently observed in patients with vaccinia, infectious mononucleosis, malaria, leprosy, upper respiratory infections, yaws, pinta, Colorado tick fever, relapsing fever, lymphogranuloma venereum, chancroid, measles, chickenpox, atypical pneumonia, infectious hepatitis, rat bite fever, and disseminated lupus erythematosus. In fact, any febrile illness or immunization is a potential cause of false positive tests. Drugs have also been incriminated in BFP reactions. A lupus-like phenomenon has been reported in patients undergoing prolonged treatment with hydralazine hydrochloride (Apresoline). Some of these patients developed a BFP reaction and L. E. cells in the peripheral blood.

Kostant divides BFP reactions into acute and chronic types. Acute BFP reactions are those attributable to a variety of infections; bacterial, viral, plasmodial, rickettsial, or protozoal. They appear subsequent to such diseases and regress spontaneously to normality within a relatively short period of time, not exceeding six months. Chronic reactions are those positive results in standard serologic tests in non-treponemetic individuals which persist for a period of years, or perhaps for a lifetime. This phenomenon should be viewed as an indicator of possible significant systemic disease which would otherwise go unrecognized. Moore and Lutz report on a group of 148 chronic BFP reactors followed from one to twenty years. Most of these patients had considered themselves to be in good health at the onset of the study. Systemic lupus was diagnosed by L. E. preparations in

6.7 per cent and 30.4 per cent developed symptoms strongly suggestive of collagen vascular disease. Analysis of blood chemistry in these patients revealed abnormalities, especially in tests affected by the gamma globulin fraction, in 87 per cent of them.

Of 245 patients with a persistent BFP studied by Miller *et al.*, 23.2 per cent were found to have systemic disease. Females accounted for 71 per cent of the total series and 84 per cent of those with systemic disease. The known onset of BFP reactions reached its highest incidence in persons from twenty to thirty years of age. Two per cent of the series developed systemic L. E. and 13 per cent could be classified as having lupus diathesis. One-third of the patients with no apparent clinical illness were found to have one or more positive laboratory findings indicative of abnormal globulin.

Individuals who present positive serological tests for syphilis in the absence of anamnestic or clinical evidence of disease, including negative cardiovascular, neurological and spinal fluid studies, should be investigated to establish the diagnosis of latent syphilis, as against BFP reactions. Repeated quantitative serological tests should be performed. In the case of acute BFP reactions, titers are usually low and tend to decline to seronegativity over a period of two to six months. Therapy should be withheld for this time to afford the patient the opportunity of reverting to spontaneous seronegativity. The chronic BFP reactor may show higher titers, but these usually show no tendency to rise or fall.

One technique that is recommended in differentiating a BFP reaction is to order a battery of serological tests employing crude lipoidal antigens and cardiolipin antigens. Serological patterns obtained with such a battery (*e.g.* Mazzini against VDRL; Kline exclusion against Rein-Bossak) often suggest a syphilitic reaction or a BFP reaction. Where positive reactions are obtained with the crude lipoidal antigens and negative ones with the antigens employing cardiolipin, one is almost invariably dealing with a BFP reaction. Where similar or higher titers are present in serological reactions with the cardiolipin antigens, the likelihood of a true syphilitic reaction is greater.

An attempt should be made to discover those diseases capable of producing a BFP reaction, particularly in the case of the chronic reactor. Investigation should include serum protein studies, sedimentation rate, L. E. preparation, liver function studies, urine studies, and a hemogram. In 79 patients studied by Miller, *et al.* with a variety of laboratory tests, 57 showed abnormality in one or more tests. The following tests showed the highest incidence of abnormality: serum electrophoretic patterns, cephalin flocculation, thymol turbidity, sedimentation rate, and complete blood cell

count. Sixty-seven of the patients exhibited no clinical evidence of disease. Forty-seven showed abnormalities in the laboratory tests done. Twelve patients had clinical evidence of systemic disease, these showing a higher proportion of positive results of laboratory tests than those without systemic disease. The findings of the serum electrophoretic pattern showed a wide variation in the type of derangement of serum proteins.

If adequate facilities are not available, or the patient is uncooperative, therapy should be administered. Once therapy is administered, the patient should be considered a probable latent syphilitic and should be afforded the same follow-up as a treated proved latent syphilitic. The chronic BFP reactor may be correctly identified even after, and in spite of, antisyphilitic treatment.

In Pregnancy

The seropositive pregnant woman. In the seropositive pregnant woman every effort should be made to differentiate syphilis from biologic false positivity; but if this cannot be done the seropositive pregnant woman should be treated, primarily to protect the fetus. After the birth of the baby, the mother should be given all available clinical and laboratory examinations to establish or exclude a diagnosis of syphilis. If the mother has been treated, the infant should be followed for four to six months.

The seropositive newborn. If the mother is known to be infected with syphilis, repeated serologies must be done on the newborn infant. Cord blood results determine serological status for only that particular time. A negative serological test does not exclude congenital syphilis since a foetus infected late in pregnancy may develop positive serological reactions at variable times after delivery. A positive serological test with umbilical cord blood does not necessarily establish a diagnosis of congenital syphilis since this may merely indicate a passive transfer of maternal antibodies to a normal fetus. In the majority of such instances, the serological tests revert to negativity within two months of birth, but occasionally may persist for as long as five months. It is possible that in those persisting longer than two months there was a syphilitic infection in utero, but that it responded to maternal treatment during pregnancy. The half-life of passively transferred reagin is approximately thirty-two days; about thirty-two days after birth there is fifty per cent decrease in the quantitative titers.

The frequency and degree of seropositivity in infants will depend on the following: The higher the mother's titer at delivery, the greater likelihood of the baby's seropositivity, the higher its titer and the longer will it take for seronegativity to occur. The sensitivity

of the different tests and the type of test used must also be considered. Passively transferred reagin is detected better by complement fixation than by flocculation tests. Two types of antibody appear to be present, comparable with the phenomenon observed with the Rh-factor—a bivalent (complete) antibody (agglutinin) which is retained by the placenta and the univalent (incomplete, blocking) antibody (glutinin) which traverses the placenta and has the capacity of fixing complement. With the complement fixation tests similar reagin titers are found in mother and newborn. With flocculation tests the level of reagin antibody titers in the infant is minimal as compared with that in the mother. Antitreponemal antibodies passively transferred from the treated mother to infant have also been demonstrated. In general these antibodies appear to persist considerably longer than the anti-lipoidal reagin.

Summary

A discussion of the various serological tests for syphilis in common use and factors to be considered in interpreting them has been presented. Distinction is made between the serum reagin measured by the standard tests and the more specific antibodies detected with the TPI and related tests.

Considerable discussion is devoted to the biologically false positive reaction as it is felt that the differentiation between this and latent syphilis is one of the commonest problems which confronts clinicians dealing with patients with a reactive serology today. Techniques which may aid in making this differentiation are presented. Laboratory studies on the Reiter protein complement fixation test to date indicate that this relatively simple and inexpensive procedure will be of great value in ruling out biologically false positive reactions.

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 W. 4th Street, Topeka, Kansas.

Tumor Conference

(Continued from page 63)

noma arising in an area of leukoplakia. No tumor is present at the margins of the specimen, indicating a complete excision.

The specimen from the second patient consists of the larynx, epiglottis, hyoid bone, and cricoid cartilage with attached fragments of muscle and adipose tissue. A large, firm, ulcerated tumor involves both the true and false vocal cords bilaterally and extends upward to the base of the epiglottis. Microscopically, the mucosal epithelium ends abruptly and is replaced

by a large tumor which is composed of irregular sheets and masses of well differentiated squamous cells with prominent pearl formation. (Figure 2) The tumor invades deeply into the underlying stroma, surrounds and destroys the nests of mucous glands and penetrates down to the perichondrium. The exact

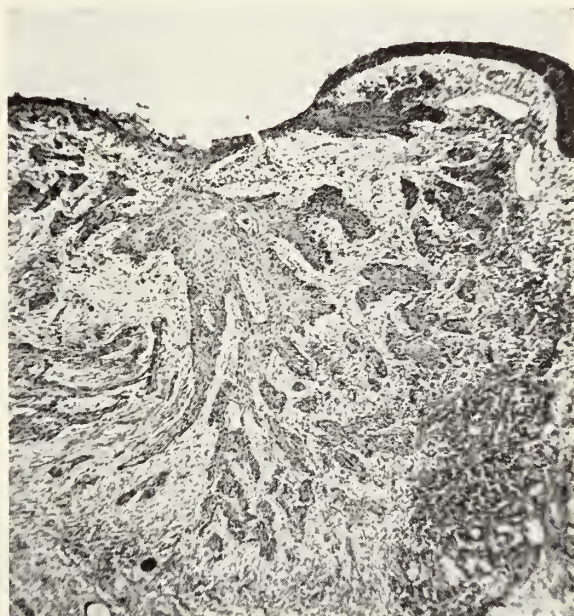


Figure 2. Deeply invasive, well differentiated squamous cell carcinoma ulcerating the surface epithelium. Hematoxylin and eosin. $\times 50$.

site of origin of this carcinoma is not apparent. This is also a well differentiated squamous cell carcinoma.

Dr. Klionsky: What is the chance of a patient who has had one carcinoma of the larynx developing a second primary carcinoma? Do you think that the tumor in the second patient is a recurrence or a second primary tumor?

Dr. Helwig: I have not had the opportunity to examine the material from the original excision of five years ago. Unless the present tumor is of an entirely different cell type than the original, I know of no way to tell whether it is recurrent or a second primary.

In general, a person who has had one cancer has about eleven times the chance of developing another one than a person who has not had cancer. However, I don't know how much greater, if any, is the chance of a second cancer developing on the opposite vocal cord.

Dr. Klionsky: The cases presented today illustrate well the value of a good understanding of the pathogenesis of a tumor and its anatomical relationships in determining the best course of treatment.

THE KANSAS MEDICAL SOCIETY
102nd ANNUAL STATE
MEETING



WICHITA

KANSAS

The President's Message

DEAR DOCTOR:

Again we must go back and evaluate what has been happening since the passage of the Kerr-Mills Bill which was passed by Congress and supported by the medical profession. Now we are again confronted with the possibility of junking the Kerr-Mills Bill for a Forand Type Bill.

It seems to me that there is a great misunderstanding regarding the Kerr-Mills Bill and what is necessary to make this bill function. If the bill is to function the legislature will need to appropriate new tax money to place it in operation. The amount of money required in Kansas, as estimated by the State Board of Social Welfare, would be around \$6,000,000 and the Federal Government would then allot around \$8,000,000. This money then is administered through the counties and state, the advantage being that those in need would receive the benefit.

The Forand Bill would cover medical service for all over 65 regardless of need and would be essentially controlled by the Federal Government.

If the states do not raise their allotted amount, it gives to the Forand supporters arguments to substitute this bill for the Kerr-Mills Bill, so it behooves us to immediately start a writing campaign, to our senators and congressmen, personal letters, not mimeograph letters. We are near complete socialization because of political expediency.



Yours very truly,

A stylized, handwritten signature in dark ink. The first part of the signature is a large, circular flourish, followed by the name 'Wrightman' in a cursive script.

President



The Role of a Medical School

All of us are inclined to interpret complex matters in terms of our own experience. If our experience is limited, we are apt to seize on a small but familiar aspect of the complex matter and render an interpretation that is limited. Remember the fable of the blind men attempting to grasp the concept of an elephant: to one it was a tree, to another a wall, and to another a rope. Medical schools are complex matters of great interest to many people and variously described by them. As the new Dean of this State's medical school, I have listened with care to the interpretation of our role by a great many people. I have done this with humility concerning the breadth of my own experience and with a conscientious desire to continue this school's important gains in fulfilling our obligations to Kansas.

Medical schools have many roles to fill and are under pressure constantly to accept new ones. The basic role must not be overshadowed; to provide opportunity for a medical education to qualified young people, and to supply physicians needed for medical service.

Some additional roles derive logically from this basic endeavor. One of them is research. Students cannot be expected to acquire inquisitive habits of learning except in a setting where learning is taking place. A faculty which is not itself engaged in learning can provide only an intellectually sterile trade school which becomes outdated quickly in a field as dynamic as medicine. Teachings may become archaic in a few years; habits of learning on the other hand endure and are crucial to the practitioner of medicine. Graduates of medical schools need more than good memories for facts. They need skills to evaluate critically new trends and claims, whether these originate from universities, federal agencies, or (and this source deserves particular scrutiny) from pharmaceutical houses. Research in medical schools is an in-

dispensable device for learning and a valuable preparation for the practice of medicine.

Medical schools are under pressure to accept responsibility for research even in excess of these needs. Private foundations and federal agencies have lured some medical schools into the role of research institutes. Each year more fabulous amounts of money are available for research projects and the medical school which does not gather these golden eggs may appear delinquent. Such a school cannot offer the most attractive facilities and support to recruit the best faculty or even the best students. Remember that even state supported schools such as this one derive little more than a third of their support from appropriations. The scramble to piece out the remaining budget leads schools inevitably to one of several available sources. One of these is the research project, skillfully padded to help support educational programs. Every granting agency, most particularly the Public Health Service, gives tacit approval and encouragement to this padding to increase support to medical schools.

There are potential pitfalls from this source. If one sees dangers in the diffusion of responsibility of a medical school away from its prime role of educating young people to expertness in the study of medicine, then one cannot help but recognize these dangers in the increasing fiscal dependence of medical schools on agencies with interests other than education. Fortunately, the Surgeon General's Office is making noises that sound like unrestricted supportive grants to medical schools. Those who fear federal influence in education as well as in research may derive little comfort from these overtures.

Other roles are served and other sources of support are available. Expert patient services are as necessary as research in the education of medical students. Hospital wards are our best laboratories for learning by students both at the undergraduate and graduate levels. They are also an indispensable source of in-

come. Someone pays for every patient. In the past the educational budget has carried a heavy portion of this load. Increasingly the load is carried by a third party involved in the practice of medicine: an insurance company or a publicly supported agency. The era when medical schools served the double role of welfare agency and educational institution is happily all but past. This does not mean that we fail in any way to fulfill the responsibility of any person or agency rendering medical services: to provide the best possible care without regard to the patient's ability to pay. The facts are, however, that by one device or another most patients either pay or their care is paid for. We believe this to be desirable. No medical school can afford to play the role of welfare agent. In fact no medical school can afford not to piece out the budget with the paying patient. Clinical departments are supported largely in this manner, whether fees are collected directly by staff members under some control of the University, as is true at our own medical school, or by some administrative device of group practice as is true at many other schools. Patient services are crucial to our teaching; they are also crucial to our financing. As need for additional faculty members increases and as competition for distinguished faculty members across the nation's medical centers (not all of them medical schools) reaches fever pitch, there is temptation to compensate additional persons by expanding clinical services. We do not imply that clinical services exist now in excess of teaching needs. In fact we depend on affiliated hospitals for additional teaching services. We do claim that requiring faculty members in the clinical years to earn their living through rendering clinical services is expensive of facilities and talent. Educational and research efforts are bound to suffer. The most effective growth of a medical center cannot be along the lines of limitless expansion of clinical services. Such expansion must be dictated solely by educational needs.

Medical schools have these two sources available, research and service, to complete an educational picture only roughly sketched in by basic educational support. Research, service, and education constitute a trinity of roles that has vexed medical schools repeatedly. Each is deserving in its own right; each is related to the other. But to a medical school the central theme against which others must be measured is education. Research and service are legs upon which medical education must stand. But neither of these can become so hypertrophied as to unbalance sure-footed progress in providing for young men and women an education in medicine, qualifying them to meet the health needs of the nation in the manner most befitting their skills and interests.

This can most surely be achieved by healthy and increased basic support for education and educators.

The twin seducers of "easy" money from research and service hold no attraction to a medical school well supported for its basic educational role. This kind of support should pose no problem for a society whose private prosperity lavishes money more generously at the corner drug store than at the school and university.

Other roles fall naturally to medical schools because their facilities and staff lend themselves to efforts not easily assumed by other resources. Only about half the students at the medical center are enrolled in the medical school. Others are enrolled as interns or residents, nursing students, practical nursing students, x-ray technologists, medical technologists, dietitians, medical social workers, occupational therapists, physical therapists, speech and hearing therapists, graduate students in various basic medical sciences, mortuary science and hospital administration. The continuing education of practicing physicians is a role which we particularly cherish. With no false modesty we claim credit for outstanding success in this role. Each year nearly 4,000 enrollees agree with us.

There is no conflict of interest among these many functions in the well balanced medical school. There is none at ours. Conflict comes only when funds must be sought for one job in order to do another. When support is abundant for educators, education will flourish. It will flourish in medicine only with increased direct support not only to medical schools, but to all colleges, universities, secondary, and primary schools from which we derive our talented students and staff.

We are seeking to build monuments of human achievement in good health. Our building materials are the best students and staff we can find.

C. ARDEN MILLER, M.D.

Dean of University of Kansas
School of Medicine

The House of Delegates

I have felt for several years that the membership of this and every component society should know and take into consideration, the importance of who the delegates are, how they should function, their duties, their responsibility to their respective societies, and their privileges. It should be shown by someone to all component societies, of the 1600 membership. I shall attempt to outline just what those duties, responsibilities and privileges are as represented by delegate activity in the National organizations.

To those who have ever served as national delegates or those who have taken and enjoyed the experience of attending and carefully observing Houses

of Delegates in action, this is an old story but those who have not had that opportunity should be informed as to the plan of operation.

Delegates' duties, responsibility may be summed up:

1. The delegate must be capable, well informed, willing to lose actual time in practice, devote time and thought and action, and before being selected should agree to accept the honor to the best of his ability.

2. He should make preliminary study of all printed reports and resolutions given to him before the session. In National organizations this goes to all delegates, alternates and officers. In Kansas it is printed in the JOURNAL and goes to all members. In the case of many delegates a preliminary meeting of all should be held to insure co-operation.

3. He should attend all meetings of the House of Delegates, including adjourned meetings and any special meetings held during his tenure of office, especially including reference committees.

4. He should carefully consider and participate in the discussions and criticisms of each recommendation, resolution or amendment presented to the reference committee, as to its value, or necessity as it concerns his own society, the state in general or of National effect on the practice of medicine.

5. When reference committee final reports are made to a subsequent meeting of the House, he should not hesitate to further discuss or criticize the recommendations made. He should then vote intelligently and, if not instructed by his organization, use his personal opinion. Any time during the meetings that nominating committee reports are made, if not satisfied he should not hesitate to make further nominations, which is always the right of any member.

Alternate delegates have the same duties, responsibilities and privileges if on rare occasion substitution is necessary, and except for the actual privilege of final vote, take an active part in the meetings, especially the reference committees, because there is where the greatest enthusiasm, effort to accomplish the best results by discussion and criticism takes place.

From the description of what delegates actually do, it is evident that selection of capable and representative members cannot be adequately done hastily or in a haphazard manner as is frequently the case in hasty nominations and elections, and demands concerted consideration by many who have occasion to know the ability and the willingness of any prospective delegate.

The value and importance of attendance at reference committee hearings to which all members, officers, delegates, alternates, and past presidents may attend and have the privilege of free discussion and criticism, is very evident as the keynote to the success

and value of the policies, actions, and concerted efforts of committee councilors and officers. The final vote and authority comes in the House of Delegates.

Whether the general plan of operation of the Kansas House of Delegates which is similar to, but with minor differences to that of the National organizations, is at fault or whether all the delegates do not understand and carry out their responsibilities and privileges, two things have combined to throw the burden of successful and satisfactory work on a few willing and capable members. In spite of these, while Kansas Medical Society has lost its position as second in the United States, for proportionate attendance, popularity to exhibitors, and attractive program, scientific and social, it still has been recognized for having some members of the Kansas Medical Society who have ability and willingness to think, act, and talk in the interests of medical and health problems, and have been consultants and participants in the work of the A.M.A.

First of these probable causes is the fact that of the 65 component societies a check over the past ten years shows that 30 to 33 component societies, mostly with 10 or less members, situated in the Eastern and middle parts of the state, have failed to send delegates to the House. Whether the members attended scientific programs is not known. The second is that either from lack of knowledge of what they could or should do, few delegates have attended the reference committee meetings. Although only one reference committee was appointed, last year the committee of five was compelled to make final decisions, with very limited discussion by a few most interested members discussing them, on something like 60 items previously printed in the JOURNAL and some 7 to 10 other resolutions inserted at the spur of the moment, some of which were poorly phrased but considered of importance enough to desire vote of the House. Committee work has continued in spite of the apparent loss of interest and attendance at State meetings, both to scientific programs and to the House of Delegates. This year there will probably be many very important resolutions and problems for attention of the House. Possibly there will be more reference committees.

The value of membership in the Kansas Medical Society of 1,600 members is proportionate to the amount of time and thought put into it, including attendance at annual scientific and business meetings controlled by the House of Delegates. Both are essential to a state organization of all physicians for medical interest. Neither one should be suspended or curtailed. The value of the power and actions of the society itself depends on the co-ordinate and co-operative time, thought and work of the individual members.

For the coming meeting Dr. Purvis and his arrangements committee have provided plans for a scientific program, equal to a P.G. Course, which is superior and of greater interest than for several years. Every physician, whether general practitioner or specialist, by attendance and attention can find something of value to him in each topic presented whether it be practical, deeply scientific, research, or special-istic. Increase on general attendance, and increased outside interest, is hoped for.

A. W. FEGTLY, M.D.
Wichita

The Office Nurse

As Chairman of the Office Nurse Section of the Kansas State Nurses' Association, I am disturbed by the fact that a lower proportion of office nurses join their professional organization than from any other category. General duty nurses, private duty nurses, school nurses, educators, administrators, consultants, teachers—all these have a higher percentage of their practitioners working actively in their professional association than do the office nurses.

I think the primary cause is isolation. Most physicians who employ professional nurses usually employ only one. In clinics and office-partnerships you might find two or more registered nurses, but generally speaking, the nurse who chooses to practice in a doctor's office is fairly well isolated from her sister nurses in terms of daily contact. This isolation removes from the office nurse the pressure that fellow practitioners can apply on behalf of professional membership.

Another thought that concerns me is the unwelcome idea that some nurses might consider the doctor's office a sort of asylum from the vicissitudes of more active professional nursing—a quiet relief from the life and death struggles in the operating room and other treatment rooms in the hospital where the patients might have greater need of emergency care. Do some women regard the doctor's office a retreat from professional responsibilities and obligations? Sometimes I wonder, when I see how few of them are members of the Kansas State Nurses' Association.

My own opinion is that office nursing presents a challenge of its own, and it is no place to stagnate—cut off and isolated from professional life. Last April our Section held the first Office Nurses' Institute in many years, and it was a resounding success. Office nurses do have much in common. They have experiences to exchange, and advanced professional trends to learn and assimilate through lecture and discussion. The best office nurses are those who regard their work

as unusual and challenging—a different but not inferior or less demanding field than the other fields of nursing. It is a field that is constantly changing, like the other areas of nursing, and its practitioners need to be exposed to new ideas and new currents through association with one another.

Office nurses and their employers should share a mutual respect for their interest in belonging to their own organization. The patient's welfare depends on the best professional care by all members of the health team, and each member has his own particular responsibility. A nurse who does not keep abreast of her own profession, is doing herself, her employer, and her patient a disservice.

BETTY GEIGER, R.N.
Chairman, Office Nurse Section
Kansas State Nurses' Association

The Kansas School Health Advisory Council

One of the organizations to which the Kansas Medical Society belongs is the Kansas School Health Advisory Council. The Council is composed of over 40 organizations interested in the health of the school child.

At a meeting on January 5, 1961, the Executive Committee of the Council established a new committee on "Mental Health of School Children" which is to be under the direction of Dr. Joseph Eisenbach, professor of Psychology at Kansas State Teachers College of Emporia. The new committee's first function will be to make a study of existing mental health programs within Kansas schools and to study state-wide programs of the other states.

One of the highlights of the Executive Committee meeting was a report on the low immunization rate of school children by Dr. Patricia Schloesser, chairman of the committee on school services. The Executive Committee went on record supporting legislation recommended by the State Board of Health that all children show certification of immunization before entering school for the first time.

At a previous meeting, the Executive Committee voted to support legislation requiring certification of school nurses. This bill will be proposed by the School Nurses Section of the Kansas Nurses Association.

Dr. Evalyn Gendel, Chairman of the Council, has announced that the spring meeting of all council delegates and alternate delegates will be held on April 13 at Kansas State Teachers College of Emporia. All delegates are encouraged to invite other members of their organization or others interested in school health to attend the meeting.

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011 ex. 297

Recent Acquisitions

Cancer

Hayhoe, F. G. Leukemia research & clinical practice. Little, Brown.

Dermatology

Lerner, M. R. Dermatologic medications. Year Book Pub., 1959.

Perlman, H. H. Pediatric dermatology. Year Book Pub., 1960.

Medical Education

Bierring, W. I. Rypins medical licensure examinations. Lippincott, 1960.

Medical Exam Co. Medical examination review book in basic sciences. Med. Exam Pub., 1960.

Neurology

Denhoff, E. Cerebral palsy & related disorders. McGraw Hill, 1960.

Lennox, W. G. Epilepsy & related disorders. Volume 1 & 2. Little, Brown, 1960.

Nursing

Hull, F. Medical nursing. F. A. Davis, 1960.

Newton, K. Geriatric nursing. C. V. Mosby, 1960.

Nutrition

Wohl, M. G. Modern nutrition in health and disease. Lea & Febiger, 1960.

Occupational Therapy

MacDonald, E. M. Occupational therapy. Williams & Wilkins, 1960.

Ophthalmology

Teubet, H. Visual field defects. Harvard University Press, 1960.

Pediatrics

Smith, E. E. Blood diseases of infancy & childhood. Mosby, 1960.

Psychiatry

Jaco, E. O. The social epidemiology of mental disorders. Russell Sage, 1960.

Public Health

Mustard, H. S. An introduction to public health. MacMillan, 1959.

Radiation and Radiology

Hollaender, A. Radiation biology. Volume 1 & 2. McGraw & Hill, 1954.

Moss, W. T. Therapeutic radiology. C. V. Mosby, 1959.

Rehabilitation

Gunzberg, H. E. Social rehabilitation of the subnormal. Williams & Wilkins, 1960.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

Surgery

American College of Surgeons. Surgical Forum, 1960.

Tumors

Pollack, D. Treatment of breast tumors. Lea & Febiger, 1959.

Urology

Scott, W. M. Yearbook of Urology. Year Book Publishers, 1960.

The library is continually adding new and professionally approved medical books and maintains an adequate file of periodicals and other publications from the various medical fields. It has reference tools which index the medical literature to be found in periodicals.

The librarian will locate references for you, or prepare bibliographies. Books or periodicals which the library does not have may be borrowed through our wide interlibrary loan privileges.

This library began in 1889 as a division of the State Library through a gift from Mrs. Jane C. Stormont. She wished it to be a living memorial to her husband, Dr. David W. Stormont, and a medium for perpetuating his sincere interest in the development of medical service and health protection in the State of Kansas.

Her gift was made through the Kansas Medical Society, and a committee of its members selected the books forming the original nucleus of the collection.



Blue Shield

New Service Benefit Program in Butler County

The development of a new Blue Shield Service Benefit Plan in Butler County has just been completed and a special enrollment campaign featuring this new program will be staged in mid-March. It is expected that similar plans will be established in other areas of Kansas during 1961.

The Butler County Plan will provide "service benefits" for members hospitalized in semi-private accommodations and also for covered services performed in the physician's office. Hospitalized patients occupying private rooms because of medical necessity will be given service benefits by a gentlemen's agreement with the Butler County Medical Society. The eligibility of the member for service benefits is not based on specific income levels.

Valuable New Benefits

Additional benefits include first and last day in-hospital medical care, in-hospital consultation, and an additional fee for assistant surgeons. Also, the allowances for some of the more frequent surgical procedures were increased above the Schedule 2 (Plan B) level. The new program will be known as Schedule 3 and it is expected that the majority of the residents in the county will want to respond to this higher level of benefits.

The acceptance of Schedule 2 by the public has been much slower than was anticipated and this new approach to service benefits may provide an answer to the reluctance of present or potential members to upgrade their prepayment of professional services. Schedule 3 provides the member with a reasonable degree of assurance that service benefits are available to him with a program that will pay most of the normal going charges of the physician.

There should also be fewer public relations problems for the physician.

May Effective Date Planned

An intensive two-week enrollment campaign is planned for mid-March, and effective date for the new program is planned for May 1. A committee of local professional men, hospital representatives and lay people is in charge of preliminary planning. Considerable education and promotion is planned prior to and during the campaign, including meetings with Medical Assistants, Physicians, Blue Cross-Blue Shield Group Leaders, Farm Bureau members and civic leaders. Every employee group in the county will be personally contacted, and explanatory literature will be sent to all other members. The program is limited to residents of Butler County.

Schedule 3 will be offered on an optional basis and present members may transfer from their present Schedule 1 or Schedule 2. The increased cost for present Schedule 2 members will be 60 cents per month for groups and 70 cents per month for non-group and Farm Bureau members. Schedule 1 members will pay \$2.00 above their present rate for groups and \$2.20 for non-group and Farm Bureau.

Butler County physicians have taken a big stride forward in planning for better health care protection for the residents of that community. It is expected that other Societies will be interested in developing a similar local program and this subject is presently being discussed in the District Blue Shield Relations Committees. One of the first steps in developing a local program is an expression of interest by the local Society and the appointment of a committee to work with the Blue Shield staff.



The Business Side of Medicine

Tax Savings Through Gifts

FLOYD F. WEHRENBURG, Kansas City, Missouri

We have previously discussed tax saving opportunities that exist through the use of trusts, wills, and marital deductions. Another avenue for Estate Tax and Income Tax Savings is through the use of gifts. Under present regulations, an individual may make tax-free gifts of \$30,000 to all donees during his lifetime without incurring gift tax liability. This is called the "Specific Exemption." An individual may also give up to \$3,000 per year to each donee without incurring liability. It is further provided that a gift made by a husband or wife may be treated for gift tax purposes as though made one-half by each. This has the effect of increasing the annual exemption to \$6,000 and the "Specific Exemption" to \$60,000 without gift tax liability. There are certain requirements to qualify for this joint treatment of gifts. Both must be citizens or residents of the United States, the person making the gift must not give his wife or husband power of appointment over the gifted property, neither can they remarry during the calendar year of the gift, and both must consent to so treating the gift.

Gifts to Spouse

Gifts to a spouse also receive special treatment. An exemption of one-half the value of the property given is allowed in addition to the \$30,000 specific and the \$3,000 annual exemptions.

Following is an illustration of the Estate Tax Savings possibilities. Assume that the individual has a

gross estate of \$300,000, a wife and no children. The estate is to go first to the wife and upon her death to charities. If all this property is held in the estate, the taxable estate will be \$90,000 (\$300,000 less \$150,000 less \$60,000) and the Federal Estate Tax will be approximately \$17,500. On the other hand, if \$100,000 is given to the wife, the estate tax will be only \$4,800, an estate tax saving of \$12,700. In order to qualify, these gifts must be made three years or more prior to death or they will be held as having been made in contemplation of death and will thereby be thrown back into the gross estate.

In the above illustration, the transfer would require seven calendar years to avoid gift tax liability. \$66,000 could be given during the first year using \$33,000 marital gift deduction, \$30,000 lifetime deduction and the \$3,000 annual deduction. During the next six years \$34,000 would have to be gifted out at \$6,000 per year.

Using this same example, assume that the individual has three children and intends for his property to go to his wife and children. Without gift or trust provisions, the Estate Tax would again be \$17,500. However, by making gifts in trust or outright to the children in the amount of \$100,000, the tax would reduce to \$4,800. Such a transfer would require three calendar years with \$78,000 going out the first year, \$18,000 the second year and \$4,000 the third year.

Tax Saving

To illustrate the Income Tax Savings, assume that the individual is in a 50 per cent tax bracket and the

(Continued on page 80)

Mr. Wehrenburg is Missouri-Kansas Manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

SPORTS RISKS WORTH WHILE

Recently 100 doctors met in Washington, D. C. for the American Medical Association's second annual national conference on the medical aspects of sports.

There has never been any question but what moderate exercise is beneficial to health. The question before the doctors was: "Are organized sports worth the risk?"

Their answer, according to a recent article in *Time*, was "a qualified yes."

It was the contention of Dr. Thomas B. Quigley of Harvard, that "young men must blow off steam and the playing field is much to be preferred to the tavern."

However Quigley also stated: "Whenever young men gather regularly on green autumn fields or winter ice or polished wooden floors to dispute the possession and position of various leather and rubber objects, according to certain rules, sooner or later someone gets hurt."

Serious injuries in sports happen often enough to keep doctors—and thousands of parents—worried.

Here are some of the findings of the various doctors:

There has been a serious decline in physical fitness of our youth. Boxing, if properly taught, would be a step in the right direction in conditioning the body as well as adding to the psychological strength of the boy and without undue risk of injury. This is according to Dr. Max M. Novich, of Newark.

Organized leagues do not classify youngsters (grade school and junior high age) by physical maturity as they should but by chronological age. Football is not a "kid sport," and cutting down the field does not make it so.

Dr. Felix Heald, Washington, D. C., pediatrician

said: "We could do away with gymnasiums if we did away with school buses."

Doctors criticized parents who instruct children that the desire to win is more important than participation. Dr. Robert R. Macdonald, Pittsburgh said: "The only thing really wrong with children's competitive athletics is the adults who run them."

The overwhelming opinion among physicians was against contact sports for elementary and junior high students.

Disputing the popular theory that punch-drunkness is the result of repeated head blows during a boxing career, was Dr. Harry A. Kaplan of New York.

Dr. Kaplan reported on a 10-year study of 3,000 electroencephalograms taken on boxers. He found no relationship between boxing and degenerative brain disease and he suggested that the punch-drunk ex-pug probably would have suffered the same fate if he had never boxed at all.—*Hutchinson News*, December 20, 1960.

QUACKERY VS. CRITICISM

The American Medical Association News, which is the newspaper of American medicine, has something worthwhile to say about what it calls "Journalistic Quackery." In its words: "Because of the public's increasing interest in health and matters pertaining thereto, the broad field of medicine each year provides subject matter for scores of books and hundreds of articles in nationally-circulated magazines.

"Most of this material is painstakingly researched, factually and objectively presented, and, consequently provides a valuable communication link between phy-

sicians, scientists, research laboratories and the public. This material, of course, is not always complimentary to medicine, but when criticism appears it often is well founded and therefore serves a useful purpose.

"Occasionally, however, an article or book is published in which the author obviously sets out to discredit physicians, hospitals, pharmaceutical companies or medicine in general, and apparently vowed at the outset not to let facts interfere with his predetermined purpose. These essays usually follow the same time-worn pattern of carefully avoiding many of the facts and making broad, generalized attacks against an organization or profession."

The *News* specifically cites several nationally published pieces of writing of which this is true. Facts are misinterpreted or warped. Overstatement and exaggeration become weapons. Some weakness, real or alleged, is blown up out of all proportion to its real significance. And the great accomplishments of medicine are overlooked or given a minimum of attention.

"Journalistic Quackery" of this order can be used to discredit any enterprise, any profession—or, for that matter, any individual. The defense against it is an informed public which can't be taken in.—*Garden City Telegram*, December 28, 1960.

BATTLE CRY

The American Medical Association has announced an uncompromising fight against broadening Social Security to provide medical care for the aged. This is an emotional issue, and the A.M.A. stand should not be interpreted as unsympathetic to older people nor against doing anything about their troubles.

The average doctor already has more than adequately demonstrated his good will toward our older citizens by treating many of them who could not afford to pay or who could afford to pay little. In fact, the doctor as an individual probably has made a greater contribution to the old people than any other individual in our society. To question the doctors' good will is absurd.

The average citizen, who has dealt with the Internal Revenue service or made five trips to town in connection with a \$40 federal farm payment will understand why the doctors are reluctant to let federal bureaucracy take command of their profession.

The average citizen doesn't seem to know that Social Security has no funds at all to use for medical purposes. Those now drawing Social Security will draw far more than they paid in at present benefit rates. If they are to receive still more benefits, they must be at the expense of those now paying Social Security taxes.

Inevitably, taxes will be paid by many who can't afford them to provide medical care for many in-

dividual elderly people who can afford to pay their own bills, or who have insurance that will cover them.

Meanwhile, the Social Security approach would leave out in the cold many old people who have no resources whatever.

No one knows more at first hand about the medical problems of older people than the doctors. No one cares more about medical problems. They recommend against the Social Security approach.

Those who know the Social Security system's condition and capabilities recommend that the whole structure not be endangered by placing upon it a new load that it was never designed to carry.

Present Social Security reserves are around \$20 billion, while obligations already incurred are more than \$300 billion.

There's no treasure trove there.—*El Dorado Times*, December 30, 1960.

TOPEKA RANKS FIFTH IN RATIO OF PHYSICIANS

Topeka ranks fifth among all cities in the nation for the number of physicians in relation to population, the U. S. Public Health Service reported Sunday in Washington.

The Kansas capital city has 215 doctors per 100,000 population.—*Topeka Daily Capital*, December 26, 1960.

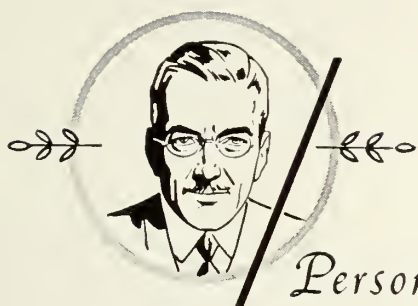
The Business Side of Medicine

(Continued from page 78)

\$100,000 is earning \$6,000 per year in dividends. The Income Tax on these dividends would be \$3,000, but the children would pay approximately \$700, an annual tax savings of \$2,300.

The basis of property for gift tax purposes is its fair market value on the date of the gift. The basis of the gift for gain purposes is the same as the basis in the hands of the last donor who received it other than by gift. This points to an important and often neglected factor—the need to keep complete and adequate records to clearly reflect these bases. Whether you are the recipient or the donor of a gift, it is vital that you secure the data and keep a permanent record of such information for gift tax and income tax purposes.

The field of gifts is so closely related to the use of trusts and estate planning that a decision regarding a gift must be considered from all angles. It is important for this reason that these decisions be made only upon the advice of your attorney after properly weighing all factors. If used judiciously, gift provisions can provide a useful avenue for tax-free transfer of sizable amounts of property over a period of years.



Personalities—IN KANSAS MEDICINE

Drs. Bernard Hall and **Herbert Klemmer**, Topeka, attended a meeting of the Kansas District Branch of the American Psychiatric Association on December 2 in Wichita.

Dr. John G. Esch, Pittsburg, took over this month as president of the Crawford County Medical Society. **Dr. Howard R. Elliott**, Pittsburg, is the vice president and **Dr. Jack D. Walker**, Pittsburg, is secretary treasurer.

Dr. Philip W. Russell, Wichita, recently attended, at government expense, a conference on Satellite tracking at Smithsonian Astrophysical Observatory, Cambridge, Massachusetts.

Dr. Karl Menninger, Topeka, has been elected vice president of the American Society of Criminology. He addressed the Academy of Religion and Mental Health in New York on January 19.

Dr. Joseph A. Budetti, Wichita, attended by invitation the International Symposium on Otosclerosis held at the Henry Ford Hospital in Detroit on November 10-12.

Dr. Max Halley, Topeka, passed his examination in Thoracic Surgery in October.

Dr. J. L. Morgan, Emporia, has been appointed to membership on the Kansas Medical Committee of the American School Health Association. The announcement was made by **Dr. Charles Pokorny**,

chairman of the Kansas Tuberculosis and Health Association's Committee for Certification in Tuberculin Testing in Kansas Schools.

Dr. Herbert Modlin, Topeka, was a visiting lecturer at the University of Texas Law School in Austin, December 1-3. He gave a lecture entitled "Mental Hygiene in Industry" sponsored by the Michigan Association for Mental Health in Detroit, January 16-17. February 16-18 he will be a lecturer and panelist at the annual meeting of the Law-Science Academy and Foundation in Austin, Texas.

Dr. Harry Lazar, Wichita, has been appointed regional consultant to the Jewish National Home for Asthmatic Children at Denver, Colorado. He also attended the Rocky Mountain Allergy Society meeting, while in Denver.

Dr. Lewis C. Blackburn, formerly of Galena, has moved to Chetopa.

Dr. Bartlett W. Ramsey, Topeka, has been elected a Fellow of the American Academy of Pediatrics.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Douglas T. Ferraro, M.D.
St. Francis Hospital
Topeka, Kansas

Albert L. Heiser, M.D.
409 Garlinghouse Building
Topeka, Kansas

Waitstill B. Nickell, M.D.
1725 Grove
Topeka, Kansas

Dr. Wirt Warren, Wichita, attended a course in "Oral Hypo-Glycemia Agents" at the University of Oklahoma Medical Center on November 9.

Dr. James G. Hughbanks, Independence, discontinued his medical practice in Cherryvale.

Dr. J. T. Whallon, Wichita, attended the Symposium on Internal Medicine at University of Kansas Medical Center on November 14-17.

Dr. Dwight Lawson, Topeka, spoke to the Sedgwick County Medical Society on January 3 on "Disability Determination Under Social Security," and also on the program was **Dr. George Gsell**, Wichita, who discussed the difference between physical impairment and disability.

Dr. Kenneth A. Powell, Leavenworth, was elected by the Cushing Memorial Hospital medical staff as president for the coming year. **Dr. R. H. Moore**, Lansing, was named vice president.

New officers of the Arkansas City Memorial Hospital Medical Staff presided at the dinner meeting at the hospital. They are **Dr. William G. Weston**, president; **Dr. E. D. Hinshaw**, vice president; and **Dr. Newton Smith**, secretary; all of Arkansas City.

Sedgwick County Medical Society installed new officers on January 3. They are **Dr. William J. Reals**, president; **Dr. Harry O. Anderson**, vice president; **Dr. J. Walker Butin**, secretary; and **Dr. Mack A. Carter**, treasurer; all of Wichita.

A symposium on "Mother and Child" was presented as the second of six postgraduate programs of the Kansas Circuit course under the direction of the department of Postgraduate Medical Education, University of Kansas School of Medicine.

The speakers were **Dr. Franklin C. Behrle**, Kansas City; **Dr. Thomas M. Holder**; **Dr. Kermit E. Krantz**, Kansas City; and **Dr. Chien Liu**, Kansas City.

Dr. Robert Banks, Paola, was elected president of the Miami County Medical Society. He succeeds **Dr. Rex Stanley**, who has served the past year. Dr. Banks automatically becomes chief of staff of the hospital.

New vice-president is **Dr. W. O. Appenfeller**, Osawatomie and **Dr. Donald H. Morrison**, secretary-treasurer.

A series of lectures and discussion sessions, called "Understanding Community Living" and concerned primarily with the community and family aspects of mental health, will be presented in Greensburg this winter. One of the speakers will be **Dr. R. D. Boles**, Dodge City.

A symposium on Neurology was presented in Arkansas City as the second of six postgraduate programs for the Eastern Circuit of the Kansas Circuit Course sponsored by the University of Kansas Medical Center.

Dr. Robert T. Manning, Kansas City, discussed "Etiology and Pathogenesis of Cerebrovascular Disease." **Dr. John Kepes** spoke on "Clinicopathologic Correlations of Cerebrovascular Disease," and **Dr. Charles M. Poser's**, Kansas City, subject was "Diagnosis and Management of Cerebrovascular Disease." **Dr. Charles E. Brackett, Jr.**, Kansas City, spoke on "Surgical Consideration of Cerebrovascular Disease" and "Stereotaxic Surgery for Parkinsonism."

Dr. John D. Jarrott, Hutchinson, is one of 18 American orthopedic surgeons, all members of the Orthopedic Letters Club, who have paid their own way to Jordan to help the cripples of that country.

Dr. S. A. Anderson, Clay Center, was named Clay County health officer.

The ant is knowing and wise; but he doesn't know enough to take a vacation. The worshipper of energy is too physically energetic to see that he cannot explore certain higher fields until he is still.—*Clarence Day*

By rights, satire is a lone and introspective occupation, for nobody can describe a fool to the life without much patient self-inspection.—*Frank Moore Colby*



Response to a "Crisis"

A Report from the Dean of the University of Kansas Medical Center

IN THIS ISSUE OF THE JOURNAL, devoted by tradition to articles from the Medical School, the new Dean might most appropriately present a statement on the status of the school: its changes in personnel, its successes in education and research, its problems, its plans for growth, and its needs. He might especially present any personal views which could be reflected in altered programs of the school and variations in patterns of operation. He certainly should be mindful of the tremendous interest the physicians of Kansas have in these matters. This Medical School has been conspicuous in the nation for the harmony which has existed between the school and the physicians of the state. We know this harmony has worked to the advantage of the school in terms of support for its programs; we believe it has also worked to the advantage of medicine in Kansas through the development of one of the world's most successful programs in continuation education.

Our medical school has had changes in personnel, successes in programs of research and education; we have some problems, we have many plans for growth, and we have needs. We especially have plans for new buildings which will expand and improve medical education in Kansas. Some new buildings will accommodate acute needs such as those for out-patient teaching; others will accommodate chronic needs, such as housing for students, and laboratories. Most of all we have a continuing need for interested and supportive colleagues throughout the state.

During the past six months I have been privileged to meet with many local medical societies. At these meetings most of the items above have been discussed in detail. The physicians of Kansas have given a

most gracious welcome. I receive this gratefully as a tribute to the past successes of gifted predecessors and colleagues. I recognize it also as encouragement for continued success of the medical school. I have become dean with all the advantages of a successful program, a superb staff, and an enlightened state. I accept the responsibilities with humility and with a pledge to serve well these advantages.

Perhaps with this background I may be permitted to deviate from the usual progress report in order to discuss issues which are vital and immediate to our medical school and our state but which are more general in nature, and possibly more important, than buildings and promotions. They are issues which involve all of us in medicine whether as teachers, students, or practitioners. In some measure all of us fill all of these roles and we have a common concern for issues affecting them.

At a recent medical meeting, a speaker commented that medicine, like a pretty woman, prefers to be admired than talked about. This observation, implying the sins of pride and complacency, can be added to others that appear almost weekly in popular periodicals, dissecting medical science, practice, and education. Our professional organizations, ethics, education, motives, politics, and incomes are openly reviewed and criticized; we are favorite subjects for those expert satirical editorialists, the cartoonists; analysis of our services is copy for a spate of monographs and reports issued by foundations and public agencies. If we do, in fact, resent the light of publicity on medical affairs, then we have ample cause for resentment. Medicine is being talked about; questions are being asked of us. Attitudes of defensiveness and resentment will not suffice for

answers. They provide only a climate for non-medical planners to provide answers for us.

The common theme to much commentary is that the world is changing and medical institutions in this country are not changing with it. We are, in fact, accused of resisting change in favor of a status quo which may offer advantages to the profession, possibly at the expense of the best possible medical care to the public. No wonder resentment and defensiveness bristle! What changes medicine has undergone in fifty years.

Reflecting only on those aspects with which I have greatest familiarity, I see tremendous changes in preparation for the profession. The development of medical schools as a part of university education; internships and residencies; specialty boards; continuation education; all of these have been developed within the past fifty years. Other changes have been more subtle: the shifting locus of practice from the home to the office and increasingly to the hospital; the growth of group practice and indeed the reluctance of recent graduates to enter "solo" practice; the recent preponderance of prepayment plans for health services; increasing specialism; and the astonishing advances in our understanding and therapy of disease.

These indeed are changes; they are changes brought about largely by the profession itself in an effort to bring the best that is known about medical care to all persons in need of it. We may question the wisdom of some of these changes, and we may question their present adequacy, but we cannot question the fact that staggering changes have occurred in the education of physicians and in their patterns of service.

We may be rightfully proud of our professional heritage. We perhaps need to recognize increasingly that this heritage was developed by courageous forebears in medicine who displayed more than flexibility to external pressures: they exercised leadership to discard what was no longer helpful; to preserve what was of proven value; and to modify, sometimes by bold strokes and sometimes by subtle shadings, the entire picture of medicine. We are obligated to society, to our profession, and to our successors in medicine to develop a heritage as rich as ours has been. These comments should not be construed as advocacy for discarding traditional values in medical practice. I advocate only that we study ourselves as carefully as others are studying us. If we find problems, we may well develop through our professional organizations some solutions which are more sensible than those of our critics.

A recent issue of *Harper's Magazine* will illustrate some problems which concern us. A special supplement entitled "The Crisis in American Medicine" presents eight articles dealing with medical education and practice. One of these claims that the poli-

tics of organized medicine is an obstacle to urgently needed reforms (not well formulated) in health services; another asserts that physicians are lacking in compassion and devotion to public interest; a third laments that medical science has prolonged human life but has not sufficiently relieved suffering by means of "death control"; a fourth advocates one curriculum in medical schools for the family doctor, and a different one for the medical scientist; a fifth, by a physician, urges a return to concern for the ill, and reform of professional attitudes toward politics, money, and social status; another asserts that vast sums of money are being misspent in the name of medical research; the seventh describes a new role for hospitals in health services; the last article depicts modern medicine as a powerful and luxurious ocean liner with no course and little mechanism for control, poorly prepared to cope with new threats to health in the twentieth century.

There is much to disagree with in these articles; there is even more to reflect on. We make a mistake to ignore them. We may claim that medicine, like the church, is an anvil that has broken many a hammer. Can we feel that secure? These hammers may influence public action on medical matters more dramatically than can our well staffed societies and expensive lobbies. We are familiar with the militant liberal of the thirties and forties, who loved mankind but disliked people. Are we now facing an influential and articulate society which respects the doctor but mistrusts the profession? Our efforts on behalf of a healthy society will be weakened by such mistrust.

In reading these critiques and listening to others I have pondered the role of the university in studying the issues. Some problems are clearly in the lap of the medical school. I feel, for example, that Kansas abounds with evidence that our curriculum trains many and competent family doctors. With regard to research, I share the concern over its means of support, but I must protect its role in medical education as a device for teaching students to learn from their own observations, surely a talent as necessary for family practice as for any other medical endeavor.

What of the other issues raised under the banner, "The Crisis in American Medicine"? Are these pertinent to medical education? I'm not sure. The issues are sensitive; they arouse strong feelings and their study may damage popularity. We are a medical school for Kansas and we must have strong popular support. We may, however, do less than enough if we seek only to be popular.

Let me close these commentaries with a question. Are these broader issues of medicine as appropriate for our study as genetics, metabolism, or chemotherapy? Your colleagues in the university have no answers or preconceived notions about the issues. Our

(Continued on page 86)

The Clinical Traineeship

Intensive, Participative and Personalized Postgraduate Training

JESSE D. RISING, M.D.

ALMOST EVERY WEEK some eager physician volunteers in a spirit of helpfulness that the postgraduate refresher courses are fine, but it would be wonderful if there were opportunities for practicing physicians to come back to the Medical Center to get on-the-job training especially designed to fulfill their personal needs. The fact is that such programs are available, and have been for years. Since relatively few Kansans are aware of this phase of our activities, it seems appropriate, in this KUMC number of the JOURNAL, to discuss the Clinical Traineeship and describe how it fits into the total program of continuing medical education.

The Clinical Traineeship may be defined as a period of intensive, personalized, participative education for a physician who arranges to leave his practice for a period of time to re-enter a teaching hospital for advanced training designed to meet his specific needs. The time involved may vary from one week to one year—more often one to six months. Generally speaking the clinical trainee takes part in ward work, rounds, clinics and conferences in much the same way that a resident does except that he has more control over the content of his training program and he is not obligated to certain service duties such as routine night call and the like.

Ever since the beginnings of the medical profession it seems to have been the custom for physicians, when they felt the need to increase their competence in one field or another, to leave their own practices and seek more education as students of other physicians or in medical teaching institutions. In the recent past it was common for physicians in this country to go to European clinics or universities for postgraduate training before attempting more specialized types of practice. More recently such training has been increasingly available in this country, and foreigners are now seeking our shores.

Formal graduate medical education (the residency) leading to specialty certification has in the past 25 years dominated the field of intensive, participative training, and has so far taken the emphasis from the informal and more personalized type of training that the latter has been largely neglected and ignored. In spite of this the need has continued to exist and some physicians have all along sought and found more or less satisfactory solutions to their educational prob-

lems. Vollan¹ pointed out some of the advantages of family physicians' taking work to develop "part-time" specialist skills. No one suggests that such postgraduate courses should replace formal graduate training, but they have some obvious advantages that it would be unfortunate to lose by permitting them to be submerged by the formal specialty programs.

At least as important as the acquiring of new skills and techniques is the not-so-simple matter of keeping up with the pace of medical progress in one's own field. This need is acutely felt by all thoughtful physicians—generalists and specialists alike—and by paramedical groups as shown by the phenomenal nationwide support of postgraduate programs in the past fifteen years. The backbone of these programs has been the largely didactic "refresher" course which has had an enormous impact on medical practice and has obviously satisfied an urgent need; but educators and students alike have recognized the deficiencies of predominately passive methods of education. The Council on Medical Education and Hospitals² summarized this concern after an extensive review of educational methods: "There is ample evidence . . . that overemphasis on purely didactic methods provides an educational program that is inferior to one requiring active participation."

Some degree of participation of the enrollees has been secured in the better refresher courses by such devices as panel discussions with open question periods, live clinics, discussion groups ("clinical conversations"), ward rounds and laboratory "workshops." The very nature of such programs makes sustained participation by the individual enrollee difficult if not impossible.

The Clinical Traineeship is designed to complement the traditional postgraduate refresher courses by making available to physicians, technicians and nurses a training program that emphasizes active participation by the enrollee in the study and care of patients or in the work of the clinical laboratory.

In an informal way such training has been available at KUMC for some time, probably ever since the medical school was established, but it was not until 1949 that an organized effort was launched by the Department of Postgraduate Medical Education as "In-Residence Training." In 1955 some of the traineeships were given formal structure, and in 1957 the name officially became "Clinical Traineeship."

In spite of the relative obscurity of the program,

Department of Postgraduate Medical Education, University of Kansas School of Medicine.

acceptance has been good. Enrollments will never, of course, rival those of the refresher courses, but this is not a valid criterion of the value of the Clinical Traineeship which offers a maximum degree of education and training to a relatively few enrollees. Traineeships have been offered by the various clinical departments through the Postgraduate Department for eleven years, and a total of 81 enrollees have been served. It is of some interest that 19 of these were from 12 foreign countries (Table I).

Annual enrollment has varied from two in 1950 to 15 in 1960. The latter figure includes four medical technologists who took the traineeship in Exfoliative Cytology, first offered in 1959.

A wide variety of traineeships are now available (Table II), and more are being planned. In most cases these traineeships are purposely flexible so that the enrollee may select, with the advice of the chief of the service involved, that program which will best satisfy his requirements. Certain activities are, however, scheduled by each service for its personnel, and this provides a basic structure for the Clinical Traineeship which it offers.

As it becomes better known, and as programs are developed in all fields where a need exists, the Clinical Traineeship is undoubtedly destined to be an increasingly important part of continuing medical education. This should be true not only for physicians but for all members of the health team. Each year many mothers who have been nurses or technicians return to part-time work in these fields, and others who have reared their families resume full-time professional work. These constitute a group that is vitally needed for adequate care of the nation's health, but most of them can not function at their full potential until they can catch up with developments in their pro-

| TABLE II CLINICAL TRAINEESHIPS OFFERED AND THEIR DURATION | |
|---|-------------------------|
| Anesthesiology | (1 week to 1 year) |
| Cardiology | (9 months) |
| Cardiovascular Disease | (1 month) |
| Gastroenterology | (1 month) |
| Hematology | (1 month) |
| Medical Technology | |
| Program A | (6 months) |
| Program B | (2 weeks to 2 months) |
| Microbiology | (12 months) |
| Clinical Chemistry | (12 months) |
| Exfoliative Cytology | (6 months) |
| Microbiology | (3 to 9 months) |
| Nursing Service and | |
| Supervision | (open) |
| Obstetrics and Gynecology | (open) |
| Ophthalmology | (open) |
| Otorhinolaryngology | (open) |
| Pathology | (6 to 12 months) |
| Pediatrics | (1 month and up) |
| Physical Medicine and | |
| Rehabilitation | (3 weeks to 6 months) |
| Psychiatry | (3, 6, 9, or 12 months) |
| Pulmonary Disease | (1 month) |

fession. For them the Clinical Traineeship appears to be an ideal program.

Little known though it is, the Clinical Traineeship has filled an important niche in continuing education for physicians and for other members of the health team. As its advantages are recognized and exploited it is destined to become an increasingly popular form of postgraduate work.

References

1. Vollan, Douglas D.: "Postgraduate Medical Education in the United States." Chicago, American Medical Association, 1955, p 69.

2. The Council on Medical Education and Hospitals: "A Guide Regarding Objectives and Basic Principles of Postgraduate Medical Education Programs." Chicago, American Medical Association, 1957.

Response to a "Crisis"

(Continued from page 84)

concern is no different from yours. In the free atmosphere of inquiry in the university, we are prepared to provide study, not answers. A major link between you and your university is our program in continuation education. Is it desirable or appropriate that we engage with you through this device in the study of a suggested "Crisis in American Medicine" as a joint project with your Kansas Medical Society?

C. Arden Miller, M.D., Dean
The University of Kansas School of Medicine

TABLE I
COUNTRIES FROM WHICH TRAINEES
HAVE BEEN ENROLLED

| Country | Enrollees |
|----------------|-----------|
| Afganistan | 1 |
| Brazil | 1 |
| China (Taiwan) | 3 |
| Germany | 1 |
| India | 4 |
| Indonesia | 1 |
| Japan | 2 |
| Pakistan | 2 |
| Paraguay | 1 |
| Spain | 1 |
| Thailand | 1 |
| Turkey | 1 |
| United States | 62 |

Physician Distribution

A Kansas, 1960 Follow-up Study

E. V. THIEHOFF, M.D., *Kansas City*

A SURVEY OF THE DISTRIBUTION of physicians in Kansas was made by the author in 1955.¹ Because the problem of uneven distribution of physicians still exists, it was decided to make a follow-up study five years later. The variation in distribution of physicians is not a permanent one as many changes in the location of physicians occur each month in the state. Using the 1955 survey as a base line or point of reference, the present survey has been made to determine what changes have occurred in the distribution of physicians in Kansas.

The present study was made with the cooperation of the Kansas State Board of Healing Arts. Only doctors of medicine and surgery, who are duly licensed and registered to practice in Kansas, were included. Doctors of osteopathy and doctors of chiropractic were not included.

In the collection of data reference was made to:

American Medical Association Directory. 20th ed. 1958.

Directory of Medical Specialists. Volume 9, 1959.

Roster of Kansas Physicians. January, 1959 (also monthly supplements).

Medical, Health and Related Facilities of Greater Kansas City. Ten County Edition. 1960-61. Compiled by the Jackson County Medical Society.

Roster of Wyandotte County Medical Society. 1960.

The Medical Bulletin. Sedgwick County Medical Society. Volume 30, 1960.

"Population of Kansas, March 1, 1960, as reported by County Assessors" was used in assigning population figures to various counties and cities. This was issued by the Kansas State Board of Agriculture.

Since the previous survey was closed as of October, 1955, so this survey was made as of October, 1960. Again, only physicians who maintain offices in Kansas were considered as Kansas physicians.

Physicians Licensed in Kansas

Physicians are licensed to practice in the state by:

1. Examination—Those who pass an examination assembled and administered by the Kansas State Board of Healing Arts.

2. Endorsement—Those who have been licensed

in other states and have met the Board's requirements for reciprocity.

A Board of Basic Science was established by a law passed in 1957. This law requires that applicants for licensing shall have certificates of ability in anatomy, chemistry, physiology, bacteriology and pathology, the same to be issued by the Board of Basic Science Examiners. Since 1958, those taking the examination for licensing are required to complete a year of internship before certificates of licensure are issued.

Table I gives the number of physicians who have

TABLE I
NUMBER OF PRACTITIONERS LICENSED IN
KANSAS BY YEAR (1955-59 INCLUSIVE)

| | 1955 | 1956 | 1957 | 1958 | 1959 |
|--------------------------|------|------|------|------|------|
| Examination | 141 | 122 | 143 | 5 | 62 |
| Endorsement | 69 | 50 | 80 | 31 | 58 |
| Failures | | | 1 | | 2 |
| Withheld for Internship | | | | 27 | 31 |
| Total Licensed | 210 | 172 | 223 | 63 | 151 |

been licensed in Kansas each year for the past five years. In that period 819 have been licensed, or an average of 164 per year. In the preceding 20 years (1935-54) an average of 153 had been licensed each year. So this represents an increase in the average number of physicians licensed per year over the past five years. However, there was a decided drop in the number licensed in 1958. This was the year that the Basic Science Law became effective. This was followed by an increase in 1959. In 1958 there were 27 licenses and in 1959 there were 31 licenses withheld for completion of the internship.

Table II shows that as of October, 1960, there were 2,382 doctors of medicine resident and licensed to practice in Kansas, as compared with 2,340 in October, 1955. In 1960, 81.99 per cent of the physicians in Kansas were in active practice, while in October, 1955, there were 81.15 per cent in active practice. There was an increase in the number of interns and residents in Kansas hospitals. In 1955 there were 299 interns and residents, representing 12.78 per cent of the physicians in the state, as compared with 343 in 1960, or 14.40 per cent of the total physicians. There

The author is chief, Section of Public Health and Preventive Medicine of the Department of Internal Medicine, University of Kansas Medical Center.

TABLE II
DOCTORS OF MEDICINE LICENSED TO
PRACTICE IN KANSAS
OCTOBER, 1955 AND OCTOBER, 1960

| <i>Status of Practice</i> | 1955 | | 1960 | |
|---------------------------------|-------|--------|-------|--------|
| | NO. | % | NO. | % |
| Active Practice | 1,899 | 81.15 | 1,953 | 81.99 |
| Interns and Residents | 299 | 12.78 | 343 | 14.40 |
| Absent—in Military | | | | |
| Service | 76 | 3.25 | 68 | 2.86 |
| Retired | 66 | 2.82 | 18 | 0.75 |
| Total | 2,340 | 100.00 | 2,382 | 100.00 |

TABLE III
DISTRIBUTION BY AGE GROUPS—
DOCTORS OF MEDICINE IN KANSAS
OCTOBER, 1955 AND OCTOBER, 1960

| <i>Age Groups—Years</i> | 1955 | | 1960 | |
|-------------------------|-------|--------|-------|--------|
| | NO. | % | NO. | % |
| Under 30 | 239 | 10.21 | 248 | 10.41 |
| 30-39 | 763 | 32.61 | 754 | 31.65 |
| 40-49 | 478 | 20.43 | 583 | 24.48 |
| 50-59 | 298 | 12.73 | 359 | 15.07 |
| 60-69 | 220 | 9.40 | 194 | 8.14 |
| 70-79 | 248 | 10.60 | 169 | 7.10 |
| 80 and over | 94 | 4.02 | 75 | 3.15 |
| Total | 2,340 | 100.00 | 2,382 | 100.00 |

were eight fewer physicians in military service in 1960 than in 1955 and there was a drop from 66 to 18 in the number of retired physicians. Thus, in 1960 the services of 3.61 per cent of Kansas physicians were

not available either because they were in military service or had retired. In 1955 the percentage was 6.07. Included in the list of physicians in active practice are a few who are not providing direct patient care but are doing research, teaching, public health work, etc.

In 1955, with a total population of 2,050,478, the ratio of persons per physician in Kansas was 876. In 1960, with an increase in population to 2,130,579, the ratio was 894.4 persons per physician.

Table III gives the calculation of age distribution of physicians in Kansas in October, 1955 as compared with physicians in October, 1960.

There have been some variations in the distribution of physicians in the various age groups in 1960 as compared with 1955. Again the number of physicians under 30 years of age is disproportionately high since it includes those young physicians who are serving as interns or residents in Kansas hospitals. Between 30 and 59 years of age is considered to be the most effective in the individual's practice. In 1955, 65.77 per cent of the physicians in Kansas was in this age group. In 1960 the percentage had increased to 71.20. In 1955 it was found that 24.02 per cent of Kansas physicians were 60 years of age or older. In 1960 this percentage had dropped to 18.39 per cent.

The mean or average age for all physicians in Kansas in 1955 was 47 years. This figure was obtained by adding the ages of all the physicians and dividing by the number of physicians. In 1960 the average age of physicians in the state was 46 years.

Table IV shows the relationship between the age of physicians and the size of the communities in which they practice.

In 1960 there has been a small increase in the total number of physicians practicing in both large and small communities and a decrease in those located in

TABLE IV
DISTRIBUTION OF DOCTORS BY AGE AND SIZE OF COMMUNITY IN KANSAS IN
OCTOBER, 1955 AND OCTOBER, 1960

| <i>Size of Community</i> | 1955 | | | | 1960 | | | |
|--------------------------|---------------------|----------|-------------|----------|---------------------|----------|-------------|----------|
| | <i>Age in Years</i> | | | ALL AGES | <i>Age in Years</i> | | | ALL AGES |
| | 39 AND UNDER | 40 TO 59 | 60 AND OVER | | 39 AND UNDER | 40 TO 59 | 60 AND OVER | |
| Large* | 609 | 354 | 193 | 1,156 | 634 | 284 | 303 | 1,221 |
| Intermediate† | 234 | 300 | 193 | 727 | 212 | 188 | 260 | 660 |
| Small‡ | 160 | 122 | 175 | 457 | 156 | 111 | 234 | 501 |
| Total | 1,003 | 776 | 561 | 2,340 | 1,002 | 583 | 797 | 2,382 |

* Over 30,000 population
† Between 5,000 and 30,000 population
‡ Less than 5,000 population

TABLE V
AGE DISTRIBUTION OF PHYSICIANS BY PRINCIPAL CITIES
OCTOBER, 1955 AND OCTOBER, 1960

| Age Group in Years | Principal Cities | | | | Remainder of State | | | | Total | |
|-----------------------|------------------|-----|--------|-----|-----------------------|-----|-------|-------|-------|-------|
| | KANSAS CITY | | TOPEKA | | WICHITA | | 1955 | | 1955 | 1960 |
| Under 30 | 78 | 92 | 55 | 43 | 56 | 52 | 50 | 61 | 239 | 248 |
| 30-39 | 135 | 150 | 108 | 103 | 144 | 136 | 376 | 365 | 763 | 754 |
| 40-49 | 66 | 61 | 74 | 81 | 84 | 118 | 254 | 323 | 478 | 583 |
| 50-59 | 35 | 43 | 24 | 39 | 41 | 60 | 198 | 217 | 298 | 359 |
| 60-69 | 24 | 21 | 19 | 12 | 31 | 29 | 146 | 132 | 220 | 194 |
| 70-79 | 10 | 15 | 19 | 10 | 27 | 23 | 192 | 121 | 248 | 169 |
| 80 and over | 9 | 3 | 13 | 3 | 8 | 6 | 64 | 63 | 94 | 75 |
| Total | 357 | 385 | 312 | 291 | 391 | 424 | 1,280 | 1,282 | 2,340 | 2,382 |

communities of intermediate size, as compared with the number of physicians in communities of similar size in 1955. In the age group 39 years of age and under, the great number of physicians located in large communities is weighted by the fact that many of them are interns and residents who must take their service in hospitals located in large communities. This number was greater in 1960 than in 1955. In 1960 there are more physicians 60 years of age and over, and fewer in the younger age groups, practicing in the small communities of Kansas than there were in 1955. This may indicate that there are now fewer young men going to the smaller communities to practice than there were in previous years.

Kansas has three principal cities, Kansas City, Topeka, and Wichita. In order to determine whether these cities receive medical service from physicians of a younger age than does the remainder of the state, the data were broken down and analyzed as to the age of physicians practicing in the three cities, with physicians practicing in all other parts of the state being pooled into a fourth group. Table V shows the results of analysis made on this basis, comparing the 1960 analysis with that made in 1955.

In 1960, as in 1955, there are more young physicians under 30 years of age in Kansas City than in the other two cities. This may be accounted for by the number of young physicians in internship and residency training at the University of Kansas Medical Center. To lessen the influence of the presence of interns and residents on age distribution, let us compare the principal cities as to the proportion of physicians who are 30 to 59 years of age to physicians of all ages. Of Kansas City's physicians, 66 per cent are in the 30 to 59 age group in 1960, which is the same as it was in 1955. In the other two cities, as well as in the remainder of the state, the proportion of physicians in this age group in 1960 has increased

over that in 1955. The percentage in Topeka has increased from 66 per cent in 1955 to 77 per cent in 1960 and in Wichita it has increased from 68 per cent in 1955 to 74 per cent in 1960. For the rest of the state the percentage has increased from 64 per cent in 1955 to 72 per cent in 1960.

Kansas Graduates in Practice in the State

It is of interest to assess what the contribution of the University of Kansas School of Medicine has been to the ranks of physicians practicing in the state. In former years there were some other schools of medicine in Kansas, but these have gone out of existence, the last in 1913. However, there are a few of the older physicians remaining in the state who were graduates of these schools.

From Table VI we see that of the physicians now in Kansas there remain only 23 physicians who graduated from former schools which are no longer in existence in the state, as compared with 56 who were still alive in 1955. It is apparent that there are still more physicians in Kansas in 1960 who graduated from out-of-state schools as was the case in 1955. However, the percentage of the University of Kansas

TABLE VI
MEDICAL SCHOOL OF GRADUATION
PHYSICIANS IN KANSAS
1955 AND 1960

| School | 1955 | | 1960 | |
|----------------------|-------|--------|-------|--------|
| | NO. | % | NO. | % |
| University of Kansas | 957 | 40.90 | 1,110 | 46.60 |
| Other Kansas Schools | 56 | 2.39 | 23 | 0.97 |
| Out-of-State Schools | 1,327 | 56.71 | 1,249 | 52.43 |
| Total | 2,340 | 100.00 | 2,382 | 100.00 |

TABLE VII
DISTRIBUTION OF PHYSICIANS BY SCHOOL OF GRADUATION AND STATUS OF
ACTIVITY OF PRACTICE IN 1955 AND 1960

| Activity of Practice | Kansas University | | | | Other Kansas Schools | | | | Out of State Schools | | | | 1955 Total | 1960 Total |
|-------------------------|----------------------|------|-------|------|-------------------------|------|------|------|-------------------------|------|-------|------|---------------|---------------|
| | 1955 | | 1960 | | 1955 | | 1960 | | 1955 | | 1960 | | | |
| | NO. | % | NO. | % | NO. | % | NO. | % | NO. | % | NO. | % | | |
| Retired | 4 | 0.4 | 3 | 0.2 | 7 | 12.5 | 4 | 17.4 | 55 | 4.2 | 11 | 0.8 | 66 | 18 |
| Military Service . | 54 | 5.6 | 53 | 4.8 | 0 | 0 | 0 | 0 | 22 | 1.6 | 15 | 1.2 | 76 | 68 |
| Active Practice . | 899 | 94.0 | 1,054 | 95.0 | 49 | 87.5 | 19 | 82.6 | 1,250 | 94.2 | 1,223 | 98.0 | 2,198 | 2,296 |
| Total | 957 | 100 | 1,110 | 100 | 56 | 100 | 23 | 100 | 1,327 | 100 | 1,249 | 100 | 2,340 | 2,382 |

graduates in the state has increased from 40.90 per cent in 1955 to 46.60 per cent in 1960.

Table VII shows that, regardless of school of graduation, physicians in Kansas are, of course, predominantly in active practice. Of the Kansas physicians who are in military service in 1960, 78 per cent are graduates of the University of Kansas. In 1955 there were 71 per cent of the physicians in military services who were graduates of Kansas University. On the other hand, a smaller percentage of physicians in the state who are retired are Kansas University graduates than was the case in 1955.

Let us next give consideration to the age distribution of Kansas physicians by school of graduation.

In Table VIII we see that in actual numbers in 1960 there are 855 physicians under 50 years of age who graduated from Kansas University as compared with 730 physicians in the same age group who graduated from out-of-state schools. This is a difference of 125. In 1955 there were 758 Kansas University graduates in this age group as compared with 722 graduates

from out-of-state schools, or a difference of 36. In 1960 we find that 77 per cent of Kansas University graduates in the state are under 50 years of age, whereas in 1955 there was 79 per cent in this age group. Likewise, in 1960 there are 58 per cent of the graduates from out-of-state schools in Kansas who are under 50 years of age, while in 1955 there was 54 per cent in that group. So the percentage of physicians under 50 years of age has dropped in both the Kansas University graduates and in the out-of-state school graduates.

Table IX shows that, of the Kansas University graduates practicing in the state, 45.59 per cent are in large communities in 1960. This compares with 44.72 per cent in 1955. Among the doctors in the state who graduated from out-of-state schools, 56.69 per cent are located in the large communities. This compares with 53.05 per cent who were in large communities in 1955. A higher percentage of doctors graduating from out-of-state schools go to large com-

TABLE VIII
DISTRIBUTION OF KANSAS PHYSICIANS BY SCHOOL OF GRADUATION AND BY AGE
IN 1955 AND 1960

| Age in Years | Number of Physicians | | | | | | | |
|---------------------|----------------------|-------|-------------------------|------|-------------------------|-------|-------|-------|
| | KANSAS UNIVERSITY | | OTHER KANSAS SCHOOLS | | OUT OF STATE SCHOOLS | | Total | |
| | 1955 | 1960 | 1955 | 1960 | 1955 | 1960 | 1955 | 1960 |
| Under 30 | 106 | 138 | 0 | 0 | 133 | 110 | 239 | 248 |
| 30-39 | 420 | 400 | 0 | 0 | 343 | 354 | 763 | 754 |
| 40-49 | 232 | 317 | 0 | 0 | 246 | 266 | 478 | 583 |
| 50-59 | 119 | 160 | 0 | 0 | 179 | 199 | 298 | 359 |
| 60-69 | 59 | 64 | 11 | 1 | 150 | 129 | 220 | 194 |
| 70-79 | 19 | 26 | 33 | 15 | 196 | 128 | 248 | 169 |
| 80 and over | 2 | 5 | 12 | 7 | 80 | 63 | 94 | 75 |
| Total | 957 | 1,110 | 56 | 23 | 1,327 | 1,249 | 2,340 | 2,382 |

TABLE IX
DISTRIBUTION OF PHYSICIANS BY SCHOOL OF GRADUATION AND BY SIZE
OF COMMUNITY

| Size of Community | K.U. | | Other Kansas Schools | | Out of State Schools | | Total | |
|----------------------|-------|--------|----------------------------|--------|----------------------------|--------|-------|--------|
| | NO. | % | NO. | % | NO. | % | NO. | % |
| Large | 506 | 45.59 | 7 | 30.44 | 708 | 56.69 | 1,221 | 51.26 |
| Intermediate | 329 | 29.64 | 7 | 30.44 | 324 | 25.94 | 660 | 27.71 |
| Small | 275 | 24.77 | 9 | 39.12 | 217 | 17.37 | 501 | 21.03 |
| Total | 1,110 | 100.00 | 23 | 100.00 | 1,249 | 100.00 | 2,382 | 100.00 |

munities than of those graduating from the University of Kansas School of Medicine.

In 1960, of all doctors located in the large communities of Kansas, 41.44 per cent are graduates of the University of Kansas, while 57.98 per cent are graduates of out-of-state schools. This compares with 37.03 per cent Kansas University men and 60.90 per cent out-of-state graduates in large communities in 1955.

In 1960, in the small communities we see that 54.89 per cent of the physicians came from Kansas

University, while 43.31 per cent came from out-of-state medical schools. In 1955 the ratio was 45.30 per cent Kansas University men and 50.76 per cent out-of-state graduates. So in 1960 the percentage of physicians in small communities who are Kansas University graduates has increased.

Specialization of Kansas Physicians

Attention should be given to the relative distribution of the services of specialists and general practitioners. For this purpose, physicians have been divided into three categories:

1. Certified specialists
2. Non-certified specialists
3. General practitioners

In 1960 we find that 29.55 per cent of Kansas physicians are classed as specialists, as compared with 40.51 per cent in 1955. The percentage of certified specialists has increased from 16.15 per cent in 1955 to 18.05 per cent in 1960. There were 59.49 per cent of the physicians in the state in general practice in 1955, while in 1960 we find that 70.45 per cent are in that category. So in 1960, while there is an increase in the number of physicians in general practice,

TABLE X
DISTRIBUTION OF PHYSICIANS BY
SPECIALIZATION

| Status as to Specialty | 1955 | | 1960 | |
|---------------------------|-------|--------|-------|--------|
| | NO. | % | NO. | % |
| Certified | 378 | 16.15 | 430 | 18.05 |
| Non-Certified | 570 | 24.36 | 274 | 11.50 |
| General Practice | 1,392 | 59.49 | 1,678 | 70.45 |
| Total | 2,340 | 100.00 | 2,382 | 100.00 |

TABLE XI
DISTRIBUTION OF PHYSICIANS BY SIZE OF COMMUNITY

| Size of Community | Number of Physicians | | | | | | | |
|----------------------|----------------------|------|---------------|------|------------------|-------|-------|-------|
| | Specialty | | | | General Practice | | Total | |
| | CERTIFIED | | NON-CERTIFIED | | 1955 | 1960 | 1955 | 1960 |
| | 1955 | 1960 | 1955 | 1960 | | | | |
| Large | 294 | 318 | 412 | 166 | 450 | 737 | 1,156 | 1,221 |
| Intermediate | 75 | 99 | 129 | 75 | 523 | 486 | 727 | 660 |
| Small | 9 | 13 | 29 | 33 | 419 | 455 | 457 | 501 |
| Total | 378 | 430 | 570 | 274 | 1,392 | 1,678 | 2,340 | 2,382 |

TABLE XII
DISTRIBUTION OF PHYSICIANS BY PRINCIPAL CITIES IN 1955 AND 1960

| Place | Number of Physicians | | | | | | | |
|---------------------|----------------------|------|---------------|------|------------------|-------|-------|-------|
| | Specialty | | | | General Practice | | Total | |
| | CERTIFIED | | NON-CERTIFIED | | 1955 | 1960 | 1955 | 1960 |
| | 1955 | 1960 | 1955 | 1960 | | | | |
| Kansas City | 82 | 90 | 147 | 34 | 128 | 262 | 357 | 385 |
| Topeka | 86 | 85 | 121 | 16 | 105 | 190 | 312 | 291 |
| Wichita | 102 | 120 | 137 | 113 | 152 | 193 | 391 | 425 |
| Rest of State | 108 | 135 | 165 | 111 | 1,007 | 1,033 | 1,280 | 1,279 |
| Total | 378 | 430 | 570 | 274 | 1,392 | 1,678 | 2,340 | 2,382 |

there has also been an increase in the number of certified specialists.

In 1960, as in 1955, the specialists are predominantly in the larger cities. This is not surprising, as the larger the city, the more specialists there are to be expected.

Let us look at the distribution of physicians in the three principal cities of Kansas, with the rest of the state being pooled into a fourth category.

Table XII shows that Wichita has the largest number of specialized physicians in both the certified group and the non-certified group. The total is 233 specialists. Kansas City ranks second with 124 specialists, and Topeka is third with 101 specialists. There are 246 specialists outside of these cities and in the rest of the state. Thus, there is a total of 704 specialists in the state in 1960 as compared with 948 in 1955. This is a decrease of 244 specialists in the state since 1955.

The most effective age range in the practice of medicine has been set at 30 to 59 years. In 1960 that

age range includes 82.09 per cent of all certified specialists in Kansas and 70.79 per cent of all non-certified specialists. In 1955 this age range included 86.4 per cent of the certified specialists and 62.2 per cent of all non-certified specialists. In 1960 physicians in Kansas who are specialists (both certified and non-certified) make up 33.4 per cent of the 30-59 year age group.

Table XIV indicates the tendency of University of Kansas graduates to specialize. Of the University of Kansas graduates now in the state, 76.27 per cent are in general practice. In 1955 the percentage was 67.08. The percentage of Kansas University graduates in the state who are certified specialists has only increased from 14.11 per cent in 1955 to 14.45 per cent in 1960, which is not significant.

The specialists in Kansas are grouped into three main categories: surgical, medical, and other, as shown in Table XV.

Of the 2,382 physicians in Kansas in 1960 we find that 704 are specialists of whom 61 per cent are

TABLE XIII
DISTRIBUTION OF PHYSICIANS BY AGE AND SPECIALIZATION IN 1955 AND 1960

| Age Group Years | Number of Physicians | | | | | | | |
|--------------------|----------------------|------|---------------|------|------------------|-------|-------|-------|
| | Specialty | | | | General Practice | | Total | |
| | CERTIFIED | | NON-CERTIFIED | | 1955 | 1960 | 1955 | 1960 |
| | 1955 | 1960 | 1955 | 1960 | | | | |
| Under 30 | 1 | 0 | 108 | 2 | 130 | 246 | 239 | 248 |
| 30-39 | 115 | 88 | 213 | 73 | 435 | 592 | 763 | 753 |
| 40-49 | 145 | 175 | 83 | 68 | 250 | 341 | 478 | 584 |
| 50-59 | 65 | 110 | 59 | 53 | 174 | 196 | 298 | 359 |
| 60-69 | 29 | 35 | 53 | 38 | 138 | 121 | 220 | 194 |
| 70-79 | 21 | 18 | 42 | 31 | 185 | 120 | 248 | 169 |
| 80 and over | 2 | 4 | 12 | 9 | 80 | 62 | 94 | 75 |
| Total | 378 | 430 | 570 | 274 | 1,392 | 1,678 | 2,340 | 2,382 |

TABLE XIV
DISTRIBUTION OF PHYSICIANS BY SCHOOL OF GRADUATION AND BY SPECIALTY IN
1955 AND 1960

| <i>Status as to Limitation of Practice</i> | K.U. | | <i>Physicians</i> OTHER KANSAS SCHOOLS | | OUT OF STATE SCHOOLS | | <i>Total</i> | |
|--|------|-------|--|------|-------------------------|-------|--------------|-------|
| | 1955 | 1960 | 1955 | 1960 | 1955 | 1960 | 1955 | 1960 |
| Specialty | | | | | | | | |
| Certified | 135 | 160 | 4 | 2 | 239 | 268 | 378 | 430 |
| Non-Certified | 180 | 111 | 9 | 7 | 381 | 156 | 570 | 274 |
| General Practice | 642 | 839 | 43 | 14 | 707 | 825 | 1,392 | 1,678 |
| Total | 957 | 1,100 | 56 | 23 | 1,327 | 1,249 | 2,340 | 2,382 |

certified. Of the specialists, 345, or 49 per cent, are in the field of surgery and its sub-divisions; 259 or 36.79 per cent, are in medical specialties; and 100 or 14.21 per cent, are in all of the other specialties.

Let us break the data down further to show the distribution of physicians by the field of specialty. Table XVI indicates the number of specialists in Kansas (certified and non-certified) in each field of specialty.

Summary

This 1960 follow-up study, as did the 1955 study, has demonstrated a wide range of variation of distribution of physicians within Kansas. While the total number of physicians in the state in 1960 is practically the same as in 1955, the average number of physicians licensed each year over the past five years has shown an increase over the average number that were licensed in the preceding twenty years. This is in spite of the fact that there was a decided drop

in the number that were licensed in 1958, the year that the basic science law became effective. The ratio of persons per physician in Kansas has increased from 876 in 1955 to 894.4 in 1960.

Physicians, on the average, are one year younger than they were in 1955. As in 1955 the majority of physicians in the state are between 30 and 59 years of age, which is the age period considered as being the most effective in an individual's practice. The percentage, however, in this age group has increased from 65.77 per cent in 1955 to 71.20 per cent in 1960. The percentage of physicians in the older age groups has dropped since 1955. Differences of age distribution of physicians practicing in Kansas in 1960 do not appear to be great enough to constitute a serious problem.

Of all the physicians in the state the percentage who are graduates of the University of Kansas has increased from 40.9 per cent in 1955 to 46.6 per cent in 1960. The percentage of physicians in small

(Continued on page 106)

TABLE XV
DISTRIBUTION OF PHYSICIANS BY MAJOR GROUPS OF SPECIALTIES IN
1955 AND 1960

| <i>Physicians</i> | SURGICAL | | <i>Specialties</i> MEDICAL | | OTHER | | <i>Total</i> | |
|--------------------------|----------|-------|-------------------------------|------|-------|------|--------------|------|
| | 1955 | 1960 | 1955 | 1960 | 1955 | 1960 | 1955 | 1960 |
| Certified Specialists .. | 173 | 200 | 139 | 161 | 66 | 69 | 378 | 430 |
| Non-Certified | | | | | | | | |
| Specialists | 252 | 145 | 250 | 98 | 68 | 31 | 570 | 274 |
| Total | 425 | 345 | 389 | 259 | 134 | 100 | 984 | 704 |
| | 1955 | 1960 | | | | | | |
| General Practice | 1,392 | 1,678 | | | | | | |
| Grand Total | 2,340 | 2,382 | | | | | | |

Television in Medicine

Ten Years of Television at the University of Kansas Medical Center

DAVID S. RUHE, M.D.,* and KALE C. GENTRY, M.D.

EVERY PIONEERING VENTURE usually reflects the vision and initiative of some one man, however he may have been supported by others of similar spirit and perception. Dr. Paul W. Schafer,[†] appointed Professor of Surgery in 1949, brought television to the Kansas University Medical Center with the aid of Dean Franklin D. Murphy and with the crucial support of Dr. LaVerne Spake who was, at that time, a member of the Kansas State Board of Regents. A short-lived venture with monochrome TV from September, 1949, was replaced in November, 1951, with color TV of the CBS-Remington Rand Vericolor® system. So began a decade of adventure with television.

From 1949 to 1953 the programs were primarily procedural surgery, but with excursions into surgical anatomy, physiology and pathology. The lone color camera was locked into a special light fixture in a single operating room, while the receivers were distributed in major and minor classrooms.

From 1954 the base of operations was broadened to explore more widely the powers of the television "eye" throughout undergraduate, graduate and post-graduate medical center activities. Methodical incorporation of television into research, teaching, medical care and lay education was conceived. Logical applications of television were sought. Enthusiastic faculty members were offered active collaboration for their personal efforts. Yet the evolution of the technical aspects of television has controlled many of the steps possible, while the unique ecology of all teaching medical centers has dictated the direction of others. In 1956 the W. K. Kellogg Foundation gave a supporting five year grant to permit broad scale television development and to supply personnel both for technical innovation and for program operations. The American Cancer Society, both the Kansas Division and the national office, has been particularly helpful in support of special equipment needs.

Although the Kansas University Medical Center television activities have occurred in all four areas: in

medical education, in medical diagnosis, in research and development, and in lay information, it seems most illustrative to record the highlights of a decade of work along departmental and/or topical lines. But first the underlying principles of visual communication should be briefly stated as a fitting framework for the overall efforts.

The Era of Visual Literacy in Medicine

The coming of all manner of visual tools of communication, their technical development to already useful degrees of reasonably foolproof handling, plus the gathering pressures of a film and television-oriented society all suggest that in medicine we are not far from a major breakthrough in the application of visual methods. In the medical school setting certain criteria seem to obtain for the adoption of visual media. In their production and utilization services, departments of medical communications contribute to all school and hospital functions. However, since medicine is an intensely practical profession conducted by extremely busy and necessarily individualistic personalities, the truly great advances toward visual literacy will probably occur when the various species of cameras become the personal eyes of the profession, for recording cases, for research observations, for routine diagnosis, for specialized treatment. Automatic cameras, film or electronic adaptations to great ranges of available light, and new economics in materials all point to improved and expanded *personal* handling of the visual media, including TV.

At Kansas University it has been our underlying goal to create and support the personalized use of television by individual teachers without reference to audience size, but rather toward seeking those functions of television which are "intrinsic" to medicine's needs for research, for diagnosis and for education. Since clinical teaching is conducted principally with real cases, it seems proper to ask TV to assist in intensifying these live experiences of medicine, rather than to substitute for them. This has been the theory and practice of our on-the-spot methods of use which flout the widely-held ideas of television as a "mass" medium. In medicine, therefore, we seek to make TV the servant of the instructor and the science, whether the student group is tiny or giant.

Originally prepared as a senior paper by Dr. Gentry, who was employed part-time for three years by the Television Section of the Department of Audiovisual Education; rewritten as a report to the Kansas medical profession.

* Assoc. Prof. Preventive Medicine and Public Health, and Head, Department of Audiovisual Education.

[†] Now Director, Television Division, Walter Reed Army Medical Center, Washington, D. C.

SURGERY: Color TV and the Big Closeup

Dr. Schafer's enthusiasm for television's potential in surgery was first explored for junior medical students and in postgraduate activities.^{1, 2} During these early 1950's Smith Kline and French Laboratories were giving great impetus to color TV for surgery through a long series of programs at meetings across the country. The merits of TV for achieving surgical closeups were strikingly obvious, and these closeups augmented the impact of TV's immediacy. The CBS field-sequential system (theirs and ours) provided excellent color, despite certain technical difficulties. For a time a microwave link connected the Kansas City (Missouri) Veterans Administration Hospital with the University of Kansas Medical Center for the sharing of surgical programs. Operating room 518 with its gallery and adjacent control room was the originating site for all programs of this period.

In 1954 the gallery was converted into a fully-equipped classroom designed for on-the-spot utilization of TV in order to bring about the greatest possible intensity of surgical experience short of actual participation. A postgraduate course for general surgeons called "Operative Clinics in Surgery" was held for the five years 1955-59.³ In this same setting there have been frequent miscellaneous demonstrations of color TV for postgraduate audiences, as well as utilizations suggestive of values for teaching surgical anatomy.⁴

However, the development of the art of color television during this formative decade has been slower than was once sanguinely expected. The CBS system, despite its good qualities, also has demonstrated intrinsic shortcomings. In order to forestall certain of these, and also to broaden our equipment armamentarium, a Dage Company 3-vidicon color camera was acquired.* At the same time the three prime technical obstacles of color cameras for surgery, e.g. light, mobility and facility, were approached for possible solutions, and significant improvements were achieved.

The CBS color camera was liberated from its fixed ceiling mounting, and handled with a CBS dolly-boom. The 3-vidicon camera was swung from a heavy dolly-boom of our own design, but fabricated by the Dage Television Company. This dolly-boom can function anywhere in the Medical Center, and notably anywhere in the surgery suite, the delivery rooms, the autopsy room, etc. The present great need in color TV for large volumes of intense, cool, lens-centered, focusable light has been remedied in part with the devising of the KU-Klein light.⁵ The powers of the CBS camera were further augmented by acquisition of a large-screen color projector,** for use in the

Battenfeld Auditorium. Yet despite these technical gains, which have allowed an ever greater facility and mobility of color TV, the state of the color TV art awaits major breakthroughs in camera and receiver equipment before it can be used widely with efficiency and economy in medical schools for the surgical specialties.

RADIOLOGY: Natural Target for TV

Since monochrome TV is far superior to color in its technical controls and lower costs, the specialty of radiology with its black and white shadow pictures has been from the beginning an obvious target of television effort. Furthermore, there early appeared to be a number of important intrinsic advantages in applying TV to fluoroscopy. As events have indicated, revolutionary gains loom in the very near future.

First, there is the practically unlimited brightness provided by electronic amplification, thus eliminating the need for dark adaptation of the fluoroscopist's retinae, and allowing him to see with both rods and cones at reasonable light levels. Second, by electronic means the contrast of the picture can be controlled easily and automatically. Third—and of no small consequence—image storage techniques allow a single x-ray exposure to produce an image that can be viewed over a relatively long period of time, thereby reducing radiation to patient and doctor. Developing applications of this principle with a pulsing device,* or with a grid-controlled x-ray tube will soon produce a great reduction of x-rays when employed for serial studies. Television as currently used with image intensifiers does not yet reduce exposure, but requires slightly more than mirror optic systems available at present. Fourth, development of TV cameras utilizing x-ray sensitive tubes in the television camera theoretically permits a marked decrease in the radiation necessary to produce a good picture. Such reduction in radiation should be very great as further specialized tube development occurs. Future development of TV cameras utilizing x-ray-sensitive vidicons and orthicons holds great promise. Fifth, an infinite number of observers or students can watch the television fluoroscopy from close or remote stations in daylight. For certain routine types of fluoroscopy, the radiologist himself may prefer to view from a distance, thereby reducing his own total radiation increment. Sixth, the image may be recorded on magnetic or thermoplastic tape or motion picture film which is quickly available for projection-analysis, and can be preserved indefinitely for teaching and/or later comparisons. And of course the television images can be broadcast as a medical educational television program whenever this may be desirable, as long as the TV systems utilized in radiology continue to conform to broadcast standards.

* Gift of the American Cancer Society, Kansas Division.

** Gift of the American Cancer Society, Inc.

* Dynapulse® Machlett Company.

Dr. Karl A. Youngstrom of the Department of Radiology in 1955 began to undertake incorporation of motion pictures and television into his research and departmental diagnostic services, initially in cooperation with Drs. E. Grey Dimond and T. K. Lin. For the purposes of the Cardiovascular Laboratory, they utilized a Dage TV monochrome camera chain with a Bell & Howell 16 mm. motion picture camera for their 5 inch Philips image-intensifier. In later years Dr. James E. Crockett and Dr. Marvin I. Dunn of the Department of Medicine have routinely used motion pictures and television for cardiac catheterization, employing the cameras for definition of cardiac and vascular pathophysiology, and recording this pathology for repeated playback, study, and teaching. Dr. Colvin H. Agnew recently has joined Dr. Youngstrom in the expanded television activities of the Radiology Department. A North American Philips Company complex consisting of a 9 inch image-intensifier with Philips vidicon camera and monitor has been installed with a Philips x-ray machine. Sound motion picture recording is supplied by a 16 mm. Cinephonic camera. The Dynapulse® is an integral part of the Philips x-ray system in this research complex. Speech research funds have contributed greatly to the development of this tool, through the collaboration of Drs. William Diedrich and Ralph Shelton. (Figure 1)

During the years 1956-59 a liaison between General Electric Company's X-ray Division enabled the television staff with Dr. Youngstrom to evaluate clinically a series of x-ray-sensitive semiconductor tubes of the TVX® series as developed by G. E. engineer John E. Jacobs. One of the series was a 12 inch tube built to medical specifications for ostensible utilization in hospital or office practice. A few units have subsequently been offered for sale for special diagnostic purposes. The potential electronic efficiency of this type of tube suggests that at least some relative of the TVX may well become the standard radiological tool for the office practice of medicine. In 1958 a comparative study of radiological methods of visualization, including several TV approaches, was undertaken but is unpublished. For current needs at least, image-intensifier television complexes appear to be the most practicable.

In the cardiovascular laboratory present TV use runs perhaps to 10 hours per week, while in radiology the use of TV may be as much as 12 hours per week. This annual total of more than 1,000 hours of television time appears to foreshadow great expansions of TV utilization when the technical television innovations for radiology begin to reach their apparent promise. Improvements in television systems already allow image details superior to contemporary fluoroscopic screens. While photoluminescent plates in de-

velopment by RCA Laboratories offer another approach of great potential.

PSYCHIATRY: TV Makes Possible "Uncontaminated" Behavioral Observations

All the behavioral sciences share the problem of the "psychic contamination" imposed upon the patient-doctor relationships by the presence of observers. Using television, the intimate teaching-observation of psychiatric materials can be approached with a precision of analysis which has never before been possible. Television has been explored methodically for four years at all levels in the medical school, from psychodynamics for freshmen to psychotherapy for residents. This work by Drs. Sigmund Gundle, Paul C. Laybourne, Louis H. Forman, Merrill I. Eaton and Morton Jacobs⁶ has been singularly provocative to the faculty. (Figure 2) Active steps toward expansion of television into other areas is being undertaken. Particularly attractive are the potentials in outpa-

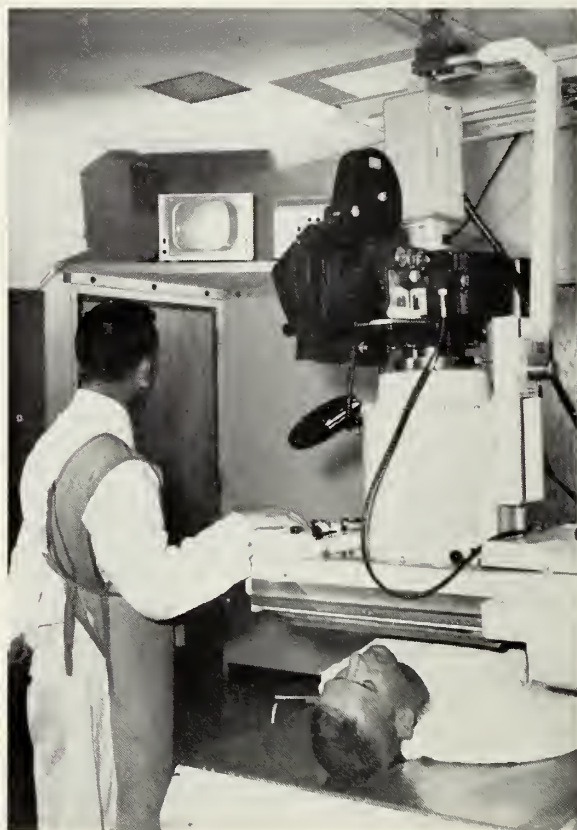


Figure 1. Television in Radiology. Special procedures room, Department of Radiology, equipped with Philips x-ray unit, 9 inch Philips image intensifier with Philips vidicon black and white television camera and Cinephonic 16 mm. magnetic sound motion picture camera. (Drs. Karl A. Youngstrom and Colvin H. Agnew.)

tient teaching and case supervision, the use of television as an instrument for the clinical testing of knowledge and skills, and the routine use of reusable videotapes for the recording of interviews so that later criticism, conferences, study, and development of a psychiatric visual teaching library will be possible. It is not impossible that TV will one day soon be considered indispensable for adequate instruction in psychiatry.

Many behavioral situations within other specialties



Figure 2. Television in Psychiatry. Wahl Hall auditorium large-screen TV demonstration utilizing Upjohn black and white projector. Dr. Sigmund Gundle presenting psychiatric material, Dr. Donald Greaves conducting interview in psychiatric building.

of medicine have been explored in preliminary fashion. "Television illustrations" in hearing and speech, rehabilitation, and certain aspects of nursing have only served to suggest the almost illimitable range of the TV camera in behavioral situations.

ENDOSCOPY: The Television Camera Heralds the End of Monocularity

Ever since endoscopes were devised, the problem of the endoscopist-teacher has been that he could not readily demonstrate to students the views which he himself was seeing. Holinger and Brubaker⁷ were the first in the United States adequately to solve the problem of photographic endoscopes for the film recording of pathology. Recently vonLeden and Moore,⁸ deMontreynaud, Edwards and Gladu⁹ and others have been intensively seeking to apply to endoscopy the television camera with its immediate living image. In the last five years there has come into the ken of scientists the potential for extreme flexibility of endoscopes in the new glass fiber bundles; these embody the quartz rod light transmission principle but carry it to a logical conclusion in the fabrication of the new "fiberscopes."

For some three years we have been working desul-

torily with the Franklin Institute of Philadelphia, seeking fiber bundles of good quality for television experiments. More recently, Hovnanian of AVCO, working with the National Naval Medical Center, has produced a "dental probe,"¹⁰ a fiberscope with developed optical accessories suitable for preliminary TV efforts. With purchase of one of these fiber bundles* has come the opportunity to explore television applications for the ear, nose and throat (Dr. G. O. Proud) and the gastrointestinal tract (Dr. A. P. Klotz).

In passing, it should be noted that routine photorecording of diagnostic problem materials for study and later consultation is expected to become more easily obtainable when the engineering of feasible videotape and motion picture systems for endoscopy have been achieved.

POSTGRADUATE MEDICAL EDUCATION: Time A-Wasting

Since the University of Kansas Medical Center has been the leading postgraduate medical educator of the U. S. for some years, and has pioneered the concept of lifetime responsibility for the education of its physician graduates, the use of television has been examined closely and many preliminary efforts have been undertaken. The existence of the excellent facilities of the Student Union-Continuation Center has offered unusual opportunities for certain types of television demonstrations. Over the past six years a wide range of television illustrations has been employed for various reasons: for novelty, for change of pace in dominantly talkie-talkie sessions, for provocative stimuli toward new areas of contemporary medical interest such as heart surgery, and, happily, often for such honest purposes as parent counselling (in hearing and speech), operative surgical clinics (with guest surgeons), dry clinics (of patients who were better handled by TV than shown on the floor before large groups), and many others. In all cases it should be emphasized that intensive planning and programming is necessary to achieve satisfaction with these large-audience groups.

In the Battenfeld Auditorium it has been useful to employ large-screen TV projection for greater impact. The CBS field-sequential projector** has been rather crotchety as a technical instrument, but provides striking images when functioning well. Recently the Upjohn Company has made a loan of a General Precision Laboratories monochrome projector which has made possible very satisfactory black and white projection. In the past, several of the national telecasts sponsored by pharmaceutical houses have been pre-

* Made possible by the American Cancer Society, Kansas Division.

** Gift of the American Cancer Society, Inc.

sented by large screen in Battenfeld Auditorium, notably the Lilly program on the Salk polio vaccine and the Wyeth program on long-acting penicillin for streptococcoses.

The cooperative microwave linkage between the Medical Center and the Kansas City (Missouri) Veterans Administration Hospital was installed in 1953 and discontinued in 1955. Although such television connections between teaching hospitals are highly practicable, television for medical education has seemed to require long strides before such linkages could become economically and educationally effective, and tenable as an administrative effort (see recent efforts of the Jacksonville (Florida) Hospitals Educational Program, Dr. Max Michael).¹¹

With a Kansas Educational Television Authority and network in prospect, the Medical Center should realize certain potentials heretofore impossible. A studio space has been allocated on the roof of the F Building, adjacent to the teaching gallery of the Department of Surgery. From the studio, with satellite microwave facilities connecting the center with a transmitter somewhere near Lawrence, programs for doctors only can then be planned and telecast. For some years local efforts have been underway to develop a doctor's system of television encoding, wherein there could be maintained security of content, with privacy of patients and anonymity of doctors. Commercial encode-decode systems devised for pay television give early prospect of offering experimental telecourses which can prove the feasibility of postgraduate medical continuing education delivered privately to the doctors in their hospitals, at their desks or in their homes. Simultaneously, there is a multi-pronged national effort, in which Kansas University will share, to produce and share videotaped medical courses suitable for telecast to doctors either by open or by "scrambled" telecasts. Such telecourses can be converted to 16 or 8 mm. sound motion picture films, and can be made available for hospitals and individual physicians for self-instructional programs.*

MISCELLANEOUS DEPARTMENTS: What We Have Yet to Do; Promises and Prospects

The laboratory sciences have yet to be explored in the degree to which television obviously can be applied, as shown by other workers in medical TV. Unhappily, the Lawrence campus with its anatomy, physiology and biochemistry is prohibitively distant; 1962 will bring opportunity, when these departments will be housed in Kansas City. Use of the black and white camera in physiology, pharmacology, microbiology and pathology laboratory demonstrations has been suggested by many others^{12, 13} but only scattered TV illustrations of the past years have scratched

the surface at this medical center. The Departments of Physiology and Anatomy will undertake methodical incorporation of television into laboratory activities early in 1961. It seems plain that wherever demonstrations of procedures to be carried out by students are required, the vidicon camera handled by the instructor in front of his class can offer to each student the exact fingertip image of what he will shortly be doing himself. Simple, cheap and relatively foolproof vidicon cameras have been devised and will soon become part and parcel of routine preclinical science teaching.

Television as a method of research instrumentation offers many challenging avenues. Many biophysical measurements are possible utilizing the intrinsic qualities of television tubes as instruments to solve problems of light, contrast and time.¹⁴

Unfortunately, at least for television development, there is no school of dentistry associated with Kansas University, since some of the most provocative uses of television have occurred in the teaching of procedural dentistry.^{14, 15} Nursing education gives prospect of many types of utilization; and our TV schedules of past years show scattered television illustrations of postgraduate nursing efforts.

Hearing and speech has found TV useful for large groups when it could not encompass its teaching audiences within one-way mirror observation rooms.

Rehabilitation and physical medicine are a natural arena of television demonstration and analysis.

Practical nursing, medical technology and radiological technology all suggest utilizations when economics make them possible.

LAY EDUCATION: A Wider Responsibility For the University Medical Center

Within the framework of our enlightened democratic society every state university may in time be conceived to owe its adult tax-paying public a lifetime of adult information as well as formal education. The coming of educational television to the great American state universities offers the prospect of an enormous expansion of extension services. Indeed, every home with a TV receiver becomes a candidate and target for multi-level education, formal and informal, which potentially involves almost all of the subjects of a university curriculum.

Anticipating the coming of the ETV network for Kansas, Kansas University has equipped and staffed a teaching and production television unit in Lawrence. At the Medical Center in 1956 the first nine programs of our health education series, "The Highroads to Health," were produced and broadcast. Three were committed to film thereafter and have been widely distributed nationally. With the coming of videotape recording there is now an immensely widened prospect of the national sharing of pro-

* Note: a pilot program sponsored by the Missouri Academy of General Practice is exploring the improved use of motion pictures for postgraduate medical education.

duction responsibilities for scientific and health information. The University of Kansas will fulfill its share of this obligation.

THE DEPARTMENT OF MEDICAL COMMUNICATION: Platform Under Television Activities

An active department of medical communications, including illustration, photography and cinematography, a visual materials library, a utilization service and an equipment depot is one platform upon which a broad-based television effort can safely and profitably grow.¹⁷ Because of the Medical Center's national leadership in the development of television for medicine, numerous consultations and visitations have been undertaken in behalf of other medical institutions. Two medical television workshops have been conducted locally, and many group demonstrations have been organized. Support has been extended to the Council on Medical Television of the Institute for Advancement of Medical Communication, to the Audiovisual Conference for Medicine and Allied Sciences, to the Association of American Medical Colleges, to the American Medical Association. Cooperation with the National Institutes of Health, the National Naval Medical Center, the Veterans Administration, the Calvin Company for its Film and Television Workshops, the American Association of Anatomists and the Intersociety Committee for Increase of Research Potential in Pathology. These efforts have enabled a widespread dissemination and sharing of the Kansas experience, for what it could offer to others.

RETROSPECT AND PROSPECT: The University Medical Center TV Facility

We hold it to be generally true that medical school television, to be accepted and used routinely, must become the personal tool of faculty members, one by one, specialty by specialty. From this truism, right or wrong, certain conclusions and directions may readily be drawn. First, the electronic engineers who will bring TV to ever greater precision, automatic function, versatility and economy are decidedly the spearpoints of progress, however much they may be influenced in their research by the criteria set them by biophysicists and physicians. The more than 1,600 television hours which the Medical Center has so far conducted have in the main been suggestive and exploratory. But they show a few clearcut present areas of important and probably permanent use, several areas of high interest for immediate development, and not a few very promising bridgeheads which await exploitation by ingenious medical minds.

Radiology should be the first to incorporate television into workaday office and hospital diagnosis, teaching and research. The behavioral sciences, not-

ably psychiatry within the medical center, should find television virtually indispensable to truly effective teaching before another five years have passed; and there is some reason to think that certain aspects of behavioral diagnosis and treatment may be radically altered with TV observational tools. Specialized diagnostic and teaching methods, such as TV endoscopy and microscopy, have a high probability of successful development and early acceptance. Since all procedural demonstrations lend themselves to TV, when faculties can agree upon *what* procedures each *wants* to teach to what students, then the facility of television will come of age in all the laboratory and clinical sciences where methods of handling biological and human materials are shown.

Television offers new ways of looking and seeing. In the next decade few areas of medicine will remain untouched. Some few will be transformed by it. These new eyes jointly called television exist for medicine's use. The University of Kansas Medical Center hopes to contribute at least its share of productive work toward an ever wider vision for medicine.

Acknowledgements

The complex efforts required for pioneering in medical television have been made possible by arduous technical contributions by many collaborators. Among those who have been responsible for both operations and development are Messrs. Fred Berry, M. R. Klein, E. V. Henley, L. M. Penniston and W. H. Heisey. Among the photographic staff should be mentioned Messrs. W. M. McGrew, B. W. Johnson, B. E. LaVine and L. C. Ireland.

References

1. Brown, M. C.: Television as a Tool in Postgraduate and Undergraduate Medical Education. N. Y. State J. Med. 60:869-874, 1960.
2. Brubaker, J. E., Brubaker, J. D., and Holinger, P. H.: Recent Progress in Open-Tube Endoscopic and Cavity Still and Motion Picture Photography. J. Biol. Phot. Ass'n. 24:104-113, 1956.
3. de Montreynaud, D., Edwards, R. J., and Gladu, A. J.: New Method of Bronchoscopy With Cinematography and Still Photography. J. Biol. Phot. Ass'n. 24:45-59, 1956.
4. Geddes, L. A., Hoff, H. E., and Spencer, W. A.: The Broadcast Demonstration in the Physiology Laboratory. J. Med. Educ. 34:107-117, 1959.
5. Hovnanian, H. P., and Haswell, D. B.: An Electro-Optic Dental Monitor. Paper presented at meeting of N.E.R.E.M., Nov., 1959 (unpublished).
6. Keasling, H. H., Gross, E. G., Long, J. P., Pittinger, C. B., Fouts, J. R., and Shipton, H. W.: Report on the Use of Closed-Circuit Television in the Teaching of Pharmacology. J. Med. Educ. 34:894-897, 1959.
7. Klein, M. R., Ruhe, D. S., Henley, E. V., Penniston, L. M., Heisey, W. H.: The Kansas University-Klein Light and the Kansas University-Dage Dolly-Boom. Research Film. 5:1, 3:339-349, 1960.
8. Michael, M.: The Jacksonville (Fla.) Hospitals Educational Program; Experiments With Coded Television (Private Communication), 1960.
9. Moore, P. V., and von Leden, H.: Television in

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Tumoral Calcinosis

A Radiologic Teaching Method

COLVIN H. AGNEW, M.D.

SEVERAL MONTHS AGO the Radiology Department added the "case" method of teaching radiology to its program to acquaint medical students and house staff with radiologic differential diagnosis. The merits of the "case of the week" have been established by others.¹ Many radiology departments have adopted Felson's "case of the week" program to their needs. Similar techniques are published regularly, such as the recent "orthopedic case of the week" (JAMA). In *Diseases of the Chest* Felson sponsors the "case of the month." On a quarterly basis it appears in the *Texas Reports on Biology and Medicine*.⁴

Competition is a common method of motivation. Felson found that a nickel reward was even a further incentive to participation. It is our hope that curiosity will be a sufficient challenge, and that reward will come in the form of increased knowledge. The present plan of departmental presentation is to select a film with a fairly obvious lesion, and to follow it in one week with a condition having similar but differential features. The features which distinguish the condition are posted along with those who had arrived at the correct diagnosis. A battery of view boxes in the corner of the film room provides interested students and staff with something to do while they wait for films. A brief résumé of the clinical information is provided. At times, perhaps, the selection of material is too subtle or obscure; it has been gratifying to note, however, the number of medical students as well as house staff who arrive at the correct diagnosis. Only a few of the senior staff have been willing to compete with the medical students and house staff.

Case Summary

This 19-year-old boy was referred to the Medical Center complaining of a lump on the left hip since 1957. Approximately four years earlier he had been seen here complaining of joint pains, mainly in the hands, but also in the shoulder and neck which were diagnosed as rheumatoid arthritis. At that time swollen metacarpal-phalangeal joints were present, and both elbows were slightly erythematous. Furthermore, it was believed that his extremities were enlarged.

From the Department of Radiology, University of Kansas School of Medicine.



Figure 1. Left hip. Conglomerations of calcium are seen regularly distributed through the mass intimately related to the greater trochanter.

This enlargement was attributed to pituitary gigantism. During his hospitalization his afternoon temperature regularly arose to 100°. It was thought, however, that his rheumatic fever was not active, but he was continued on aspirin.

Shortly after the insidious development of a firm lump on the lateral aspect of the left hip, small nodules developed about both elbows. At one time these were believed to be rheumatoid nodules and were treated without effect with cortisone. He was asymptomatic until September, 1959 when an injury to the left hip caused this mass to burst. Culture showed staphylococci. The hip abscess continued to drain. In December, 1959, material from the hip abscess showed *Actinomyces bovis* organisms. A tumor was removed from the left elbow and reported as chronic bursitis with calcification. Direct examination and culture was interpreted as *Actinomyces bovis* organisms. The hip lesion continued to

drain intermittently, and he was referred to the general medical service.

The diagnosis of actinomycosis was not confirmed here. The left hip lesion was completely removed and showed focal calcification consistent with calcific bursitis. These sections have been reviewed by Dr. Boley and he agrees that this represents tumoral calcinosis.

Discussion

In 1943 Inclán,² a Cuban physician, described three patients with giant, partially calcified tumors similar to this case occurring in three Negro females, ages 18, 19 and 10 years. Subsequently, Thompson and Tanner³ reported on a similar condition in three members of the same family of nine children, and described a lesion as occurring in "young individuals, both sexes, which enlarge, grow rapidly, but growing to a definite self-limited size. These ap-

pear during adolescence and are self limited after growing for about one year." Thompson and Tanner emphasized the familial nature of the condition. It is of some interest that Ghormley in discussing Inclán's cases cited a boy 14 years old with two sisters who, apparently, all had this condition.

More recently Reeves and Barton⁴ have reported three more cases in which two were siblings. All were Negroes.

The differential diagnosis should include calcinosis universalis and calcinosis circumscripta. Neither of these two conditions closely resemble the calcifications seen in this patient. Calcifications in collagen disease such as dermatomyositis might justify a serious consideration.

Myositis ossificans conceivably might appear to multiple sites in relation to the bursa, but usually these may be distinguished both on a clinical and radiologic basis.

Calcification about the hip joints in paraplegics

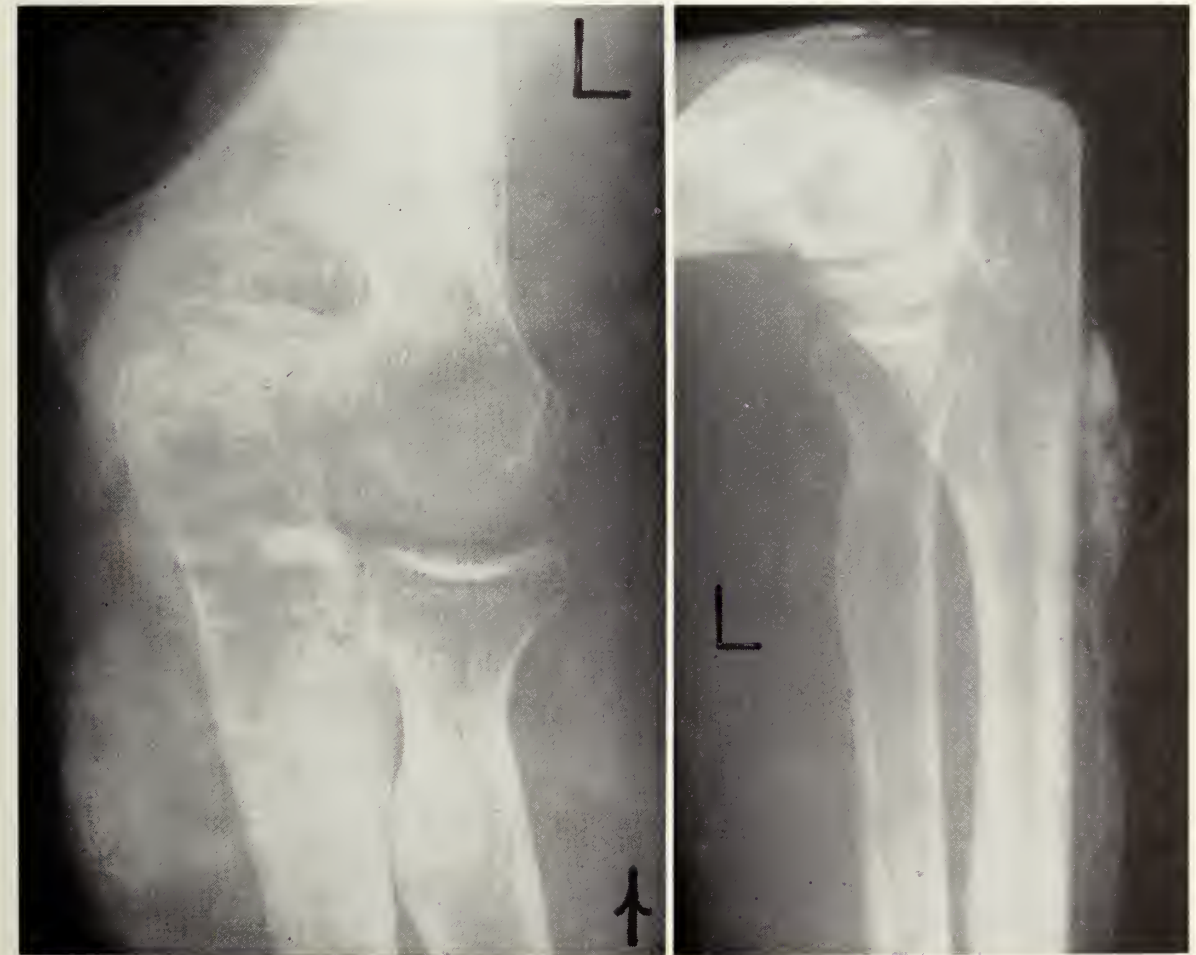


Figure 2. Left elbow. In the lateral view these calcifications are arranged linearly; however, the frontal view shows the tumoral feature.

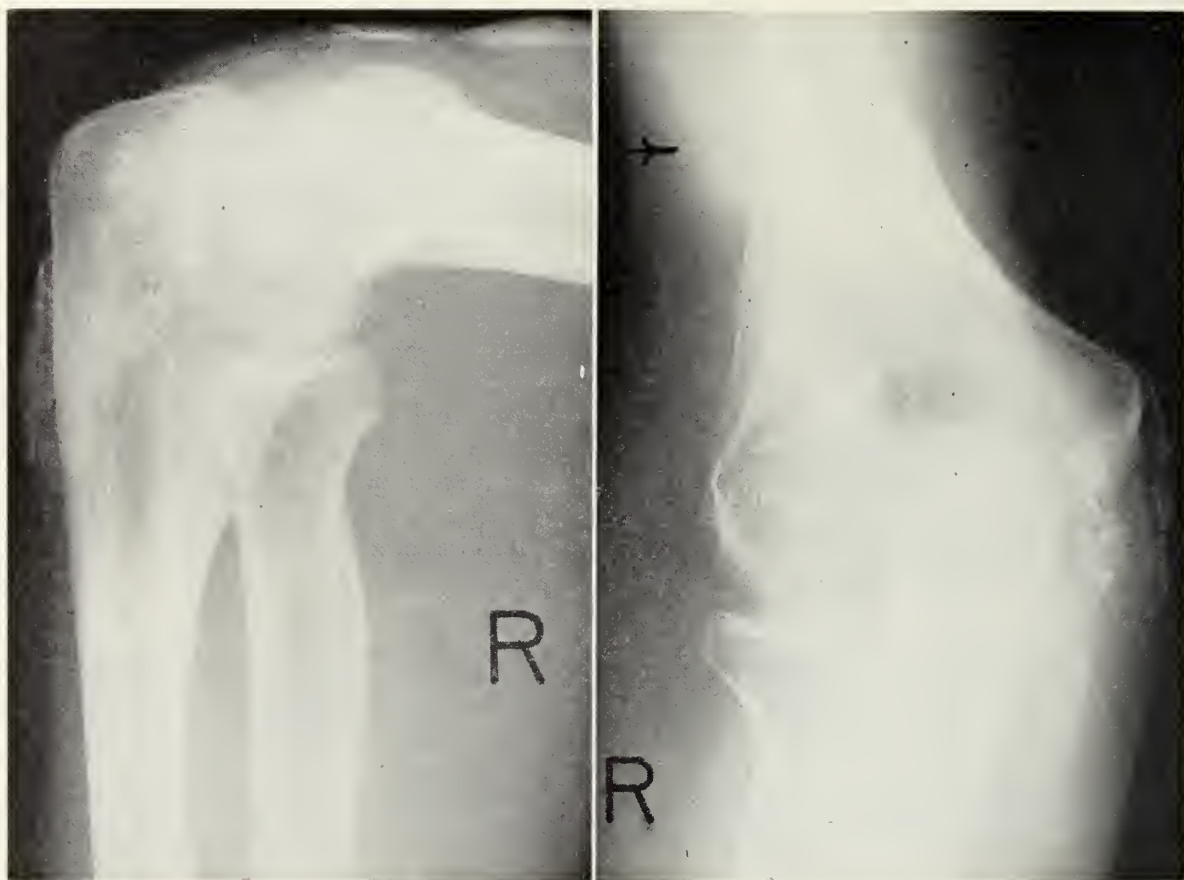


Figure 3. Right elbow. The calcified nodules have much the same distribution and appearance as those about the left elbow.

and calcification seen in some serious injuries such as burns might be difficult to distinguish from the calcifications seen in this individual. The history, however, would be important and conclusive in the differential.

The important point about this case is that it is a benign condition with a familial tendency occurring during adolescence, and is a self limited disease which does not recur following surgical removal. These patients are prone to infection; chronic infection may lead to amyloidosis.⁵ Proper treatment hinges upon the accurate diagnosis of the condition.

References

1. Felson, B.: Some techniques in the undergraduate teaching of diagnostic roentgenology. *Amer. Jour. Roent., Rad. Ther., and Nuc. Med.*, 73:110-114, 1955.
2. Inclan, A.: Tumoral Calcinosis. *Journal American Medical Assoc.*, 121:490-495, 1943.
3. Reeves, R. J. and Barton, D. L.: Tumoral Calcinosis, Unpublished. Presented before the American Roentgen Ray Society, 61st Annual Meeting.
4. Schreiber, M.: Department of Radiology—Case of the Week. *Texas Reports Biol. and Med.*, 17:166-169, 1959.
5. Thomson, J. E. M. and Tanner, Frank H.: Tumoral Calcinosis. *Journal Bone and Joint Surg.*, 31A:132-140, 1949.

Television in Medicine

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13. Ruhe, D. S., and Klein, M. R.: Operative Clinics in Surgery. *Med. and Biol. Ill.* 6:33-38, 1957.
14. Ruhe, D. S., Gundle, S., Laybourne, P. C., Forman, L. H., Jacobs, M., and Eaton, M. T.: Television in the Teaching of Psychiatry. *J. Med. Educ.* 35:916-927, 1960.
15. Schafer, P. W.: Television at the University of Kansas Medical Center. *J. Amer. Med. Ass'n.* 152:78-82, 1953.
16. Schafer, P. W.: The Kansas Television Experiment. *J. Amer. Med. Ass'n.* 152:554-557, 1953.
17. Woolsey, F. M., Ruhe, D. S., Oppenheimer, M. J., Kabisch, W. T., Davis, G. D., and Foster, J. E.: The Use of TV in Teaching Physiology and Anatomy. *J. Med. Educ.* 31:138-144, 1956.

Psychiatric Teaching

Operations of the K.U.M.C. Out-Patient Psychiatric Clinic

RUTH M. LAPI, M.D., *Kansas City*

EXPERIENCE IN THE diagnosis, disposition and treatment of patients in the Psychiatry Clinic is a major part of the psychiatric teaching program for senior medical students. The following is a report of clinic operations during the school term from September, 1959, to June, 1960.

Any patient who applied was given an appointment for diagnostic evaluation. Those patients typifying the psychiatric problems for which physicians, other than psychiatrists, should be able to assume responsibility were treated in the clinic. Appropriate referral of other patients who required long-term intensive psychotherapy or other treatment was made. At all times, students had close supervision by full-time and part-time faculty and the senior psychiatric residents in the clinic. Three hundred and fifty patients were seen; 123 men and 227 women.

Who Were the Patients?

The ages ranged from 10 to 83 (*Table I*). The majority were in the 20 to 40 year bracket and next

TABLE I
AGE DISTRIBUTION

| Age | Percentage |
|-------|------------|
| 10-20 | 16 |
| 20-30 | 29 |
| 30-40 | 27 |
| 40-50 | 12 |
| 50-60 | 8 |
| 60-70 | 5 |
| 70-80 | 3 |
| 83 | 1 |

commonest were the adolescents. There was some age overlap in the adult clinic and the child psychiatry clinic in the latter group. Some of the adolescents had complaints similar to those of the older age group; for instance, the 14-year-old girl who complained about her mother-in-law, and with justification. Most were married (*Table II*).

Director, Outpatient Psychiatry Clinic, University of Kansas School of Medicine.

TABLE II
MARITAL STATUS

| | Percentage |
|-----------|------------|
| Married | 61 |
| Single | 24 |
| Widowed | 3 |
| Divorced | 5 |
| Separated | 7 |

How Did the Patients Get to the Clinic?

Thirty-nine per cent stated that they were self-referred. Another 5 per cent were urged to come by family or friends. Three per cent were continued treatment cases carried over from the previous term. Twenty-one per cent were referred from the Medicine Clinic. Six per cent were referred by private physicians. *Table III* indicates other sources of referral. The self-referred patients were sufficiently sophisti-

TABLE III
SOURCE OF REFERRAL

| | Percentage |
|--|-------------------------|
| Stated Self-Referred | 39 plus 3% carried-over |
| Medicine Clinic | 21 |
| Private Physician | 6 |
| Family, Friend | 5 |
| Family Service Agency | 3 |
| Neurology Clinic | 3 |
| K.U.M.C. Emergency Room | 3 |
| Ob-Gyn Clinic | 2 |
| School, Minister, Private Psychiatrist, Probate Court, G.I. Clinic | 1 (Each) |
| Lawyer, V.A. Hospital, Psychologist, In-Patient Psychiatry Department | .6 (Each) |
| G.U., Allergy, ORL, Endocrine, Pediatrics, Orth. Surg., C-V Clinics, Vocational Rehabilitation, Welfare Agency | .3 (Each) |

cated to think that their difficulties might be of psychogenic origin. Despite the fact that students had learned techniques of referral, patients referred from other clinics stated that they had come to the Psychiatry Clinic because their other doctors "couldn't find anything wrong," inferring that a psychiatric diagnosis was being considered only by exclusion. There was a definite difference in the "psychological-mindedness" of the two groups.

Seventy-eight per cent of the patients were coming to this clinic for the first time. Twenty-two per cent had received treatment in previous years.

Where Did They Come From?

Fifty-six per cent were residents of Kansas and 44 per cent were from Missouri. As would be expected, 74 per cent came from within a 10-mile radius of the clinic. However, some came long distances for continued treatment (*Table IV*).

| TABLE IV | |
|-------------------------|------------|
| Residence: Kansas | 56% |
| Missouri | 44% |
| Distance Traveled | Percentage |
| Up to 10 Miles | 74 |
| 10- 20 Miles | 13 |
| 20- 50 Miles | 7 |
| 50-100 Miles | 6 |
| 100-150 Miles | 5 |
| 1 Patient—180 Miles | |
| 1 Patient—380 Miles | |

What Were Their Complaints?

Many patients had multiple complaints. It is of interest to note that the complaint stated at the first visit was often not the real reason for coming and it often bore little or no direct relationship to the psychiatric diagnosis. Instead, it seemed to be just the "ticket of admission" to playing the role of "patient" in the clinic. It is traditional to complain of physical discomfort when going to see a doctor, and, accordingly, 21 per cent of admissions had somatic complaints as their stated reason for applying to the clinic for aid. By the second or third visit, the patient was often able to disclose the more basic difficulty.

Thirteen per cent of the patients complained of depression, and half of these had attempted or threatened suicide. Eleven per cent complained of intra-familial difficulty, either between spouses or between parents and children. An additional 3 per cent com-

plained of irritability or temper tantrums. Seven per cent complained of difficulty at work or in school. Six per cent had exhibited bizarre behavior or speech. Three per cent complained of various sexual deviations. One patient complained of "being age 23 and still not smart" (*Table V*).

| TABLE V | |
|--|------------|
| CHIEF COMPLAINTS | |
| | Percentage |
| Somatic | 21 |
| Depression | 13 |
| Difficulty in intra-familial relationships . | 11 |
| Nervousness as sole complaint | 10 |
| School or work difficulty | 7 |
| Hallucinations | 4 |
| Sexual deviations, phobias, insomnia, tantrums | 3 (Each) |
| Loss of memory | 2 |
| Delusions, delinquent behavior, drug addition, confusion, obsessive thoughts and compulsions, withdrawal and lack of friends, fatigue, loss of self-confidence | |

What Were the Psychiatric Diagnoses?

Twenty-nine per cent had psychoneurotic reactions and twenty-five per cent had psychotic disorders. Thirty per cent had personality disorders, either as the sole diagnosis or underlying a more acute reaction. Six per cent had psychophysiological disorders; six per cent had chronic (irreversible) brain syndromes; and four per cent were mentally retarded, cause unknown (*Table VI*).

Eighty-nine patients completed a standard battery of psychological tests. Additional testing was done when indicated. Of those tested, 42 per cent had I.Q.'s in the average range (90-110). Forty-seven had I.Q.'s in the superior range and the rest were retarded (*Table VIII*).

What Were Their Financial Circumstances?

This question is of interest in view of recent sociological studies on the occurrence and treatment of psychiatric illness in different social classes.¹ Thirty-seven of the patients were classified as able to pay for some treatment. Twenty-two per cent carried medical insurance. This included the oldest patients, a 70-year-old man with an anxiety reaction, a 74-year-old with cerebral arteriosclerosis, a 76-year-old chronic schizophrenic and a senile 83-year-old.

What Recommendations Were Made To the Patients?

Fifty-three per cent of the patients were deemed suitable for psychotherapy in the clinic, and 9 out of 10 did receive such treatment. Twelve per cent were given medications, usually of the ataractic or mood-elevating sort. Sixteen per cent were referred for hospitalization, and all but two of these patients were accepted. Five per cent were referred to Family Service agencies for marriage counseling (*Table VIII*).

As stated above, many patients were seen only once or twice for evaluation. Other patients varied

in number of visits up to 33. The majority required 3 to 10 visits.

What Were the Results of Treatment?

A valid answer cannot be given because of inadequate facilities for follow-up. Some patients who

TABLE VI
PSYCHIATRIC DIAGNOSES

| | Percentage of Sub- Category | Percentage of Total Patients |
|--|-----------------------------------|------------------------------------|
| Psychoneurotic Disorders | | 29 |
| Anxiety Reaction | .29 | |
| Dissociative Reaction | .05 | |
| Conversion Reaction | .14 | |
| Phobic Reaction | .05 | |
| Obsessive Compulsive Reaction | .09 | |
| Depressive Reaction | .38 | |
| Psychotic Disorders | | |
| Involutional Psychotic Reaction | | 4 |
| Affective Reactions | | |
| Manic Depressive Reaction | | 0.6 |
| Psychotic Depressive Reaction | | 1.4 |
| Schizophrenic Reactions | | 19 |
| Simple Type | .07 | |
| Catatonic Type | .03 | |
| Paranoid Type | .43 | |
| Schizo-Affective Type | .10 | |
| Acute Undifferentiated Type | .05 | |
| Chronic Undifferentiated | .30 | |
| Latent (in remission) | .02 | |
| Psychophysiological Disorders | | 6 |
| Gastrointestinal Reaction | .38 | |
| Nervous System Reaction | .29 | |
| Musculoskeletal Reaction | .19 | |
| Cardiovascular Reaction | .13 | |
| Personality Disorders | | |
| Personality Pattern Disturbance | | 5 |
| Personality Trait Disturbance | | 9 |
| Sociopathic Personality Disturbance | | 8 |
| Transient Situational | | |
| Personality Disorders | | 8 |
| Mental Deficiency | | 4 |
| Chronic Brain Disorders | | 6 |

TABLE VII
INTELLIGENCE QUOTIENTS
(SHIPLEY-HARTFORD)

| | Percentage |
|-----------------------------|------------|
| 120-130 | 8 |
| 110-120 | 39 |
| 90-110 | 42 |
| 70- 90 | 6 |
| 50- 70 | 3 |
| 1 Patient had an I.Q. of 35 | |

did not return for a scheduled appointment, when contacted, stated that they felt they had received sufficient help that they could now deal with their problems, and would call on the clinic again if it should become necessary. Others expected a "magic pill" and were disappointed when it was not forthcoming. Some broke off therapy for reasons inherent in their

TABLE VIII
RECOMMENDATIONS TO PATIENTS

| | Percentage |
|---|------------|
| Psychotherapy in student clinic | 53 |
| Hospitalization | 16 |
| Pharmacotherapy | 12 |
| Referral to Family Service for expert marriage counseling | 5 |
| Referral to out-patient psychiatry clinic nearer residence | 3 |
| Referral to psychiatric resident for psychotherapy | 3 |
| Referral to private psychiatrist | 1 |
| Referral to other K.U.M.C. clinics as indicated, to Vocational Rehabilitation, to private physician with recommendation, etc. | |

illness, as when insight was gained too rapidly, or they could not give up the gains obtained by remaining ill.

Twenty per cent of the patients stated that they had been completely relieved of the complaint for which they had come. Twelve per cent stated that

they had been "much improved" and 14 per cent noted some improvement. Eleven per cent were continuing in therapy. These "improved" patients had obtained relief of symptoms and were again able to work and were more comfortable. In such brief therapy they obtained only minimal insight. The long-term intensive therapy necessary for "cure" was not available. In addition, all patients are not amenable to such treatment.

We are interested also in those who made first appointments and did not keep them. In a clinic in which students see patients for a total of only 9 or 10 days, missed appointments cut down appreciably on the clinical material from which they can learn.

There were 125 "no shows," 77 women and 48 men. Sixteen per cent of these were referred from the Medicine Clinic, 14 per cent were self-referred and 6 per cent were referred by private psychiatrists. Sixty per cent were from Kansas and 40 per cent from Missouri. The distance from clinic may have been a factor in some cases insufficiently motivated for treatment, as 7 per cent of this group were referred from more than 100 miles away.

The clinic was also engaged in research activities, in which the students participated. In so doing, they became aware of the placebo effects of drugs and of how the status of the doctor-patient relationship affected the actions of medications. They also became much more critical of medical advertising, when they observed for themselves objective evidence of the results of drug therapy as contrasted to claims made for the same medicines.

References

1. Hollingshead, A. B., and Redlich, F. C.: "Social Class and Mental Illness," Wiley, N. Y., 1958.

Physician Distribution
(Continued from page 93)

communities who are Kansas graduates has increased over the 1955 percentage.

In 1960 we find 29.55 per cent of Kansas physicians are classed as specialists. There has been an increase in the number, as well as in the percentage of physicians, who are certified specialists. Wichita has the greatest number and percentage of physicians who are specialists. This was also true in 1955. As previously found in 1955, there is a preponderance of physicians in the surgical specialties in 1960.

With a few minor increases or decreases in one category or another, it has been found that there has

TABLE XVI
DISTRIBUTION OF PHYSICIANS BY FIELD
OF SPECIALTY IN 1960

| Specialty | Specialty | | |
|--|-----------|---------------|-------|
| | CERTIFIED | NON-CERTIFIED | TOTAL |
| I. Surgical | | | |
| 1. Surgery | 66 | 78 | 144 |
| 2. Proctology | 0 | 0 | 0 |
| 3. Neurosurgery | 7 | 1 | 8 |
| 4. Orthopedic Surgery | 23 | 5 | 28 |
| 5. Plastic Surgery | 5 | 1 | 6 |
| 6. Obstetrics | 0 | 4 | 4 |
| 7. Gynecology | 0 | 0 | 0 |
| 8. Obstetrics and Gynecology | 26 | 20 | 46 |
| 9. Ophthalmology | 28 | 6 | 34 |
| 10. Otorhinolaryngology | 30 | 17 | 47 |
| 11. Ophthalmology plus Otorhinolaryngology | 2 | 4 | 6 |
| 12. Urology | 13 | 9 | 22 |
| II. Medical | | | |
| 13. Dermatology | 10 | 3 | 13 |
| 14. Internal Medicine | 74 | 56 | 130 |
| 15. Allergy | 1 | 3 | 4 |
| 16. Cardiovascular Diseases . | 1 | 3 | 4 |
| 17. Gastroenterology | 0 | 0 | 0 |
| 18. Tuberculosis | 0 | 0 | 0 |
| 19. Pediatrics | 34 | 16 | 50 |
| 20. Psychiatry | 0 | 11 | 11 |
| 21. Neurology | 0 | 0 | 0 |
| 22. Psychiatry plus Neurology | 41 | 6 | 47 |
| III. Others | | | |
| 23. Anesthesiology | 8 | 17 | 25 |
| 24. Pathology | 20 | 1 | 21 |
| 25. Clinical Pathology | 0 | 0 | 0 |
| 26. Bacteriology | 0 | 1 | 1 |
| 27. Radiology | 33 | 5 | 38 |
| 28. Industrial Practice | 0 | 0 | 0 |
| 29. Others | 8 | 7 | 15 |
| TOTAL | 430 | 274 | 704 |
| General Practice | 1,678 | | |
| GRAND TOTAL | 2,382 | | |

been no outstanding change in the distribution of physicians in Kansas in 1960 as compared with 1955. A few small variations have occurred, but not enough to greatly change the over-all picture.

Reference

1. Thiehoff, E. V.: Medical Services. Distribution of physicians and general hospital beds in Kansas in 1955. The J. Kans. Med. Soc., 58:219, April, 1957; 58:297, May, 1957; 58:357, June, 1957.

Future of Psychiatry

The Theory of the Open Ward

JOHN T. BRAUCHI, M.D.; MERRILL T. EATON, JR., M.D.,
and DONALD C. GREAVES, M.D.

PINEL REMOVED THE CHAIRS. For a while some doors were opened. Then they were closed again. Rees⁹ opened them once more. How will this change psychiatric practice in the latter part of the twentieth century?

This we predict! The majority of psychiatric patients will no longer be treated in large, isolated, specialized mental hospitals, but instead will be cared for in open wards in general hospitals and in small psychiatric hospitals in their own communities. This will encourage patients to secure earlier and hence briefer, more effective treatment; enable the community to be more aware of the needs of the mentally ill; and will simplify psychiatric practice and break down the barriers between office and hospital practice.

England has been gradually opening the wards of her mental hospitals. Several of the English hospitals have been open since 1949. Rees,^{10, 11} Bell,¹ Stern,¹³ and others have demonstrated that most, if not all, psychiatric patients can be treated on open wards. This conversion to the open ward was carried out in large mental hospitals, many of them being isolated and occupied by chronic patients and having a low turnover rate. Recently, this trend of opening the wards has spread to the United States, also in the larger state hospitals.¹² More recently psychiatric wards in general hospitals have begun to open their doors. The conversion of the psychiatric ward at the University of Kansas Medical Center has been reported by Kim and Eaton.³

On the basis of experience with continued open ward management, the authors are convinced that: (1) No patient need be refused admission because he is "too obstreperous, belligerent, suicidal, impulsive or unpredictable." One possible exception is the criminally insane, or better, the insane criminal. These patients require more security than the ordinary locked ward can provide and therefore are best treated in the psychiatric facilities of a penal institu-

tion. For the other highly disturbed patients, the open ward milieu, the formation of a therapeutic relationship, and when indicated, somatic treatment suffices. (2) Active recreational and occupational therapy facilitates operation of an open ward. Patients are left idle or on bed rest only if this is required in their treatment. Resocialization and re-motivation are essential parts of the therapeutic program. (3) Men and women patients can share living room, dining room, recreational areas, music and reading rooms with benefit. More attention is paid to grooming, deportment and table manners. (4) Formation of a patient council or government is helpful in arrangement of an open ward. The patients meet regularly with elected officers to make suggestions on improving facilities, plan recreational activities, introduce newly admitted patients, answer questions patients may have and reconcile any differences concerning the use of equipment. This engenders a feeling in the patients that the hospital is theirs, which Koltes⁹ stresses as an important factor in management. (5) Hospitalization is more acceptable; consequently patients are better able to co-operate in therapy. The patient's dignity and self-esteem are maintained or elevated.¹⁴ (6) The patient's legal status is simplified. Because of the restrictions in the patient's personal liberties inherent in a locked ward, it is necessary to obtain commitment or court order. Even if the patient comes in voluntarily it is usually necessary to have him sign a written consent for hospitalization. Implicit and too frequently explicit in court orders and commitment papers is the idea that the patient is irresponsible. Being designated as irresponsible is anti-therapeutic. Likewise, having a patient designated as irresponsible provides the physician with an arduous non-medical task of guardianship. Many quite sick psychiatric patients are capable of exercising responsibility. With simplification in the patient's legal status, the referring physician is not burdened with the clerical and legal procedures associated with commitment and his recommendation for hospitalization is more readily accepted by the patient.

The *Administrator's Guide* of the American Hospital Association lists 5,280 general hospitals in the United States. In 1945, 176 of these had psychiatric facilities. At present, there are approximately 600.³ Even with this threefold increase, only 11 per cent

Read at the Thirty-fifth Anniversary Congress of the Pan-American Medical Association, Mexico City, D. F., May 2-11, 1960. John T. Brauchi, M.D., Assistant Professor of Psychiatry, University of Kansas Medical Center, Kansas City 12, Kansas. Merrill T. Eaton, Jr., M.D., Associate Professor of Psychiatry, University of Nebraska School of Medicine, Omaha, Nebraska. Donald C. Greaves, M.D., Chairman and Professor of the Department of Psychiatry, University of Kansas Medical Center, Kansas City 12, Kansas.

of the general hospitals have psychiatric units. The success of open ward treatment of emotional illness makes the establishment of psychiatric facilities in the general hospital more practical.

Since special windows, detention screens, locks and seclusion rooms are no longer necessary, the creation of facilities would be no more difficult and little different than the addition of beds for any other type patient. Because the psychiatric patient is generally up and dressed during the day, facilities for recreation and occupational therapy are desirable. A dining room, serving cafeteria style, while necessitating the construction of a special facility, would in the end be more economical and therapeutic than serving trays to the patients in their room.

The establishment of open wards in the smaller general hospitals offers many advantages. The patient can be treated in his own community which will keep him in better contact with his family, friends, employer and the rest of the community. He will accept hospitalization more readily. Earlier acceptance and available facilities would lead to earlier diagnosis and treatment, hence a speedier recovery.

Local hospitalization would keep the community, as well as the family aware of the problems of mental patients in general. This leads to a better understanding of the needs of emotionally ill patients and facilitates rehabilitation. Relaxation of visiting rules would permit frequent visits from friends and family and allow them to participate actively in the patient's treatment.

The incidence of psychiatric disorders is high. Many smaller communities have established community guidance clinics in an attempt to deal with this problem. With hospital facilities available more psychiatrists might find these smaller communities attractive. The general practitioner has of necessity been treating more and more psychiatric cases. Obtaining a psychiatrist in the community would aid him in the treatment of his psychiatric patients.⁶

Day night hospitals and halfway houses are a type of open ward both designed to serve a particular purpose. Conservation of facilities is the primary aim of the day night hospital, alleviation of overcrowding in large state hospitals, the goal of halfway houses.⁵ When more open wards in general hospitals are established overcrowding and conservation of facilities will cease to be a problem.

For the psychiatrist, facilities in a general hospital brings him into closer contact with the other medical specialties. In a general hospital with a psychiatric ward, patients from other services showing psychiatric symptoms can not only be seen for consultation, but also may be transferred. If other conditions require continued care on a general medical or surgical ward, the psychiatrist can assist the patient's physician with psychotherapy or somatic treatment.⁷

At the present time some psychiatrists emphasize office practice and others hospital practice. This interferes with continuity of treatment for a number of patients. From the point of view of the psychiatrist there are both practical and psychological aspects which facilitate continuity of patient care. Conveniently located wards in general hospitals make it easier and less time consuming for the officer practitioner to attend the hospitalized patient. The authoritarianism implicit in a locked ward no longer intrudes on a permissive doctor-patient relationship. Likewise, the patient, first seen by the hospital psychiatrist, will find it practically and psychologically easier to continue the relationship after discharge.

The open ward in the general hospital will be of particular help to those states and countries who have overcrowded mental institutions.⁴ The earlier admissions, diagnosis and treatment, ease of conversion of existing wards, briefer hospital stays, individualization of treatment permitting patient to work at his usual occupation, and constant community awareness of mental illness with subsequent facilitation of rehabilitation would substantially reduce the overcrowding and financial burden that is the responsibility of the government.

The unlocking of doors in mental hospitals has created a large number of possibilities in the future development of psychiatry. We as psychiatrists should constantly be reminded to re-inspect our traditional concepts of patient care and develop new plans for that future.

References

1. Bell, G. M.: A mental hospital with open doors. *Intern. J. Soc. Psychiat.*, 1:42, Summer 1955.
2. Bennett, A. E.: Problems in establishing and maintaining psychiatric units in general hospitals. *Am. J. Psychiat.*, 115:974, May, 1959.
3. Bush, C. K.: Growth of general hospital care of psychiatric patients. *Am. J. Psychiat.*, 113:1059, June, 1957.
4. Camargo, O.: Letter from Brazil. *Am. J. Psychiat.*, 111:81, August, 1954.
5. Craft, M.: Psychiatric day hospitals. *Am. J. Psychiat.*, 116:231, September, 1959.
6. Eaton, M. T., Jr., Brauchi, J. T., and Greaves, D. C.: The influence of current trends in psychiatry on general practice and on the community. *J. Kansas Med. Soc.*, 61:3, March, 1960.
7. Elliott, G. A.: Psychiatry in a general hospital. *South African Med. J.*, 28:561, July 3, 1954.
8. Kim, K., and Eaton, M. T., Jr.: Experiences in the conversion of a closed to an open psychiatric ward in a general hospital. *Am. J. Psychiat.*, 116:1, July, 1959.
9. Koltes, J. A.: Mental hospitals with open doors. *Am. J. Psychiat.*, 113:250, September, 1956.
10. Rees, T. P., and Glatt, M. D.: The management of a chronic ward in a mental hospital. *Practitioner*, 175:63, July, 1955.
11. Rees, T. P., and Glatt, M. M.: The organization of a mental hospital on the basis of group participation. *Intern. J. Grp. Psychother.*, 5:137, April, 1955.
12. Snow, H. D.: Open ward policy at St. Lawrence State Hospital. *Am. J. Psychiat.*, 115:779, March, 1959.
13. Stern, E. S.: Operation sesame. *Lancet*, March 16, 1957, Pp. 557-8.
14. Wisebord, N., Denber, H., Charatan, F. B., and Travis, J. M.: Patient reactions to the "open door." *Am. J. Psychiat.*, 115:518, December, 1958.

School of Nursing

The Department of Nursing Education At the University of Kansas

E. JEAN M. HILL, R.N., M.S.

IN 1905, THE BOARD OF REGENTS recommended that a training school for nurses be established under the School of Medicine, and in the following year, four students were admitted. The Department of Nursing Education has continued to remain a department within the School of Medicine. Until five years ago, the director of nursing was responsible for both nursing service and the educational program for students, but at that time, education and service were separated, each being placed under separate administrative heads. The chairman of the Department of Nursing Education is responsible only to the Dean of the School of Medicine.

Within the Department of Nursing Education there are three kinds of educational programs: generic baccalaureate, practical nursing, and graduate nurse programs. The basic degree program is fully accredited by the National League for Nursing. During the years considerable change has occurred in the preservice program as offered by the department. With the admission of the last class of diploma students in 1950, the generic baccalaureate program became the only pre-service professional nursing program. The curriculum has been revised and reduced so that it now extends over 48 months.

Students are admitted to the Department of Nursing Education at the end of their sophomore year. During the summer quarter the students are on the Lawrence campus taking a nine credit integrated science course. Following this they spend two years at the Medical Center. During the fall quarter, 1960, there were 63 junior and 62 senior students enrolled. The department has enjoyed an enviable position of being highly selective in its choice of students. This coupled with a good program is reflected in the exceedingly high percentage of students who finish. Over a recent five-year period, an average of 86 per cent of those admitted graduated. Marriage constitutes the major reason for withdrawal. Reports from employers of graduates regarding their performance have been most favorable. The faculty has steadily increased in number and quality.

The Florence Cooke Department of Practical Nurse Education accepted its first class of 21 students in 1951. The establishment and sole support of this program of practical nursing as a pilot school within

the Department of Nursing Education was made possible through a generous five-year grant from the Samuel H. Kress Foundation. At the end of this period, the foundation extended its funds for another three years. In July 1958, the University assumed the responsibility for the program, without any reduction in personnel but with a budget increase.

Since the beginning of the program, 21 classes have been admitted and 513 students graduated. The loss of students by withdrawal has been approximately 17 per cent which is less than the state average. During the years, the caliber of students has improved and recruitment problems have declined. There is considerable demand for the graduates from prospective employers.

The faculty for the practical nurse program consists of a director, five full-time and one part-time nurse instructors and one part-time teaching dietitian.

The Department of Nursing Education recognized the need to develop two areas of education for graduate nurses: short non-credit courses to provide immediate help and a general nursing program leading to a Bachelor of Science degree. It was decided that efforts should be concentrated first on the non-credit courses offered in cooperation with the Department of Postgraduate Medical Education.

In September 1958, a director for graduate nurse programs was employed. Since 1946, special non-credit programs for graduate nurses have been offered. Initially these were refresher courses for nurses who had been inactive and who were interested in returning to practice. They were so well received that plans were made to hold them annually. Through the past years attempts were made to meet some of the needs of all of the nurses who enrolled so that the programs carried a wide variety of topics. However, since 1958 with the appointment of a director, programs have been offered which attempt to develop depth of understanding and skill instead of the broadly oriented programs which did little to improve the competency of the nurses. For instance, a series of programs in head nursing and in nursing service administration have been offered each year since 1958 so that nurses may return for further study of specific aspects of their jobs. In addition to

(Continued on page 112)

From the Department of Nursing Education, University of Kansas School of Medicine.

Tetanus

A Review of Experiences With Tetanus at K.U.M.C.

ROBERT W. WEBER, M.D., *Kansas City, Kansas*

ALTHOUGH THE AVERAGE PHYSICIAN may not see a case of tetanus in his entire professional career, the seriousness of the disease when it does occur, and the frequency with which prophylactic measures must be considered, warrant a review of experiences with tetanus at the University of Kansas Medical Center. Recommendations concerning the treatment and prevention of tetanus are presented.

In 66 Cases

From 1920 through 1959, a total of 66 cases of tetanus have been treated at the Medical Center. Table I shows the number of cases seen during each ten year period. The mortality rate of 35 per cent for the entire period demonstrates the seriousness of this preventable disease.

Since 1945, 33 cases of tetanus have been treated

TABLE I
TETANUS AT THE UNIVERSITY OF
KANSAS MEDICAL CENTER
1920-1959

| | Total Cases | Fatal Cases | Mortality Rate (%) |
|-----------------|----------------|----------------|-----------------------|
| 1920-1929 | 8 | 6 | 75 |
| 1930-1939 | 17 | 6 | 35 |
| 1940-1949 | 29 | 8 | 28 |
| 1950-1959 | 12 | 3 | 25 |

at the University of Kansas Medical Center and sufficient and comparable data was available in these cases to allow analysis. In this series there were 23 males and 10 females. The age distribution is presented in Table II. The patients varied in age from 8 days to 72 years. The incubation period was less than 14 days in 24 cases. In 5 cases the incubation period was indefinite because a specific causative wound or injury was not apparent. Trismus, nuchal rigidity, convulsions and dysphagia were the common signs and symptoms. The classic risus sardonicus was observed in 21 of the patients during the course of the disease.

Departments of Medicine and Microbiology, University of Kansas Medical Center, Kansas City, Kansas.

Various Types of Wounds

The various types of wounds which were related to the occurrence of tetanus are presented in Table III. Puncture wounds or lacerations were the most com-

Tetanus continues to be a problem in Kansas. From 1920 to 1959 sixty-six patients with tetanus were seen at the University of Kansas Medical Center. The mortality rate was 35 per cent. The data from thirty-three cases since 1945 are presented.

The most effective and safest way to prevent tetanus is immunization with tetanus toxoid. Even when it is necessary to give tetanus antitoxin because of inadequate previous immunization, tetanus toxoid should also be given.

mon causative wounds of tetanus, and minor lesions were frequently the precipitating lesion.

None of the patients gave a history of previous immunization with tetanus toxoid. Four patients, however, had received tetanus antitoxin before the symptoms of tetanus appeared. A 48-year-old farmer, with

TABLE II
TETANUS IN 33 PATIENTS AT THE
UNIVERSITY OF KANSAS MEDICAL CENTER
1945-1959

| | Number | Deaths |
|---------------------|--------|--------|
| Age | | |
| Under 5 | 6 | 2 |
| 5-20 | 14 | 2 |
| 20-60 | 11 | 5 |
| Over 60 | 2 | 1 |
| Incubation Period | | |
| Under 7 Days | 5 | 3 |
| 7-14 Days | 19 | 3 |
| Over 14 Days | 4 | 1 |
| Indeterminate | 5 | 3 |

a puncture wound in the arm, received 1,500 units of tetanus antitoxin 8 days before developing tetanus. A 14-year-old school boy who had an abrasion on the right knee received 1,500 units of tetanus antitoxin 4 days after the injury and 2 days before clinical symptoms appeared. A 9-year-old boy, who had a nail puncture wound in the foot, received 1,500 units of tetanus antitoxin on the sixth day after the injury and developed trismus and a stiff neck the following day. The last patient was a 45-year-old housewife who received a splinter in her foot and was given 1,500 units of antitoxin the next day, but developed tetanus 7 days later. Although these patients developed tetanus despite previous antitoxin, they did survive.

Treatment

All the patients in this series except one received tetanus antitoxin and antibiotics after developing tetanus. One patient died immediately following admission, before treatment was instituted. The amount

TABLE III
FOCI OF INFECTION IN 33 PATIENTS WITH
TETANUS AT THE UNIVERSITY OF
KANSAS MEDICAL CENTER
1945-1959

| | Number | Deaths |
|------------------------------|--------|--------|
| Puncture Wounds | 10 | 3 |
| Lacerations | 8 | 1 |
| Miscellaneous | 10 | |
| Endometrium | 1 | |
| Surgical Incision | 1 | |
| Submucous Resection | 1 | |
| Burns | 1 | |
| Ingrown Toenail | 1 | 1 |
| Umbilicus | 1 | 1 |
| Blister on Heel | 1 | |
| Eating Glass and Mud Pies .. | 1 | |
| Crushing Injuries | 2 | |
| Indeterminate | 5 | 3 |

of tetanus antitoxin given varied from 30,000 units to 1,650,000 units. A definite relationship between the mortality and the amount of antitoxin administered was not apparent.

The most obvious factor which did influence the mortality rate was a tracheostomy. Tracheostomies were performed on 10 patients and two expired (20 per cent). Eight of the 23 patients who did not have tracheostomies expired (35 per cent). Both patients who expired despite the tracheostomy died within 24 hours following the procedure.

TABLE IV
TREATMENT OF TETANUS

1. Neutralize any circulating toxin.
 - a. 100,000 units antitoxin intramuscularly.
 - b. 100,000 units antitoxin intravenously.
2. Surgical removal of necrotic tissue and debridement.
3. Antibiotic treatment.
4. Control of tetanospasms.
 - a. Sedation—Phenobarbital and avertin.
 - b. Muscle relaxants—Curare, Anectine.
 - c. Maintain airway—Tracheostomy.
 - d. Corticosteroids.

Discussion

The treatment of tetanus is summarized in Table IV. The treatment can be divided into four categories. The first is to neutralize any circulating toxin before it can combine with the central nervous system and produce further effects. This can be accomplished by antitoxin which should be given both intravenously and intramuscularly. The second aspect of therapy is surgical removal of necrotic tissue and debridement. This does not imply radical amputations, since the general principles of surgery in patients with tetanus are the same as for any wound or injury. The third important part of treatment is the administration of antibiotics to prevent the multiplication of the clostridial organisms. Penicillin is preferred since it is bactericidal to *Clostridium tetani*. The fourth and most important aspect of treatment is nursing care and control of tetanospasms. Sedation is very important, but care must be taken that oversedation is not produced. This is also true in the use of curare and

TABLE V
TETANUS PROPHYLAXIS

- I. Prophylaxis in absence of wounds or injuries.
 1. Tetanus toxoid.
 - a. Alum-precipitated—.5 ml. and repeat in 4 weeks.
 - b. Fluid toxoid—.5 ml. in 3 doses at 3 week intervals.
 2. Booster doses every 5-10 years.
- II. Prophylaxis after a tetanus-prone wound or injury.
 1. Patients with previous immunization—fluid toxoid only is necessary if previous booster was within 10 years.
 2. Unimmunized patients.
 - a. 3,000-30,000 units antitoxin.
 - b. Start active immunization with toxoid.
 - c. Antibiotics.

similar agents. Tracheostomy is frequently necessary in order to maintain an airway. Corticosteroids have been used in a few patients to decrease toxicity, but not sufficiently to justify a conclusion concerning their effect. They may be particularly useful to counteract hypersensitivity in the patient who is allergic to antitoxin.

The more important aspect of the tetanus problem is its prevention. There are many factors which influence our decision concerning proper prophylaxis against tetanus, and some are controversial because of incomplete knowledge concerning the disease. The patients requiring prophylaxis can be divided into two groups: those without wounds and those with wounds. The general recommendations are presented in Table V.

The effectiveness of tetanus toxoid was demonstrated in the Armed Forces during World War II. Tetanus toxoid produces an active immunity and reactions to the toxoid are mild and very infrequent. It is necessary to give booster doses, preferably, every 5 years, but rapid response in antitoxin levels occur even when booster doses are 10 to 15 years apart. Tetanus Toxoid Alum Precipitated is preferred for routine immunization because of slow absorption. In infants the triple antigen, diphtheria and tetanus toxoids and pertussis vaccine combined, is generally preferred.

After a wound or injury, patients who have previously received toxoid within 10 years, will only require a booster injection of toxoid. In this instance fluid toxoid is the toxoid of choice because it produces a rapid elevation of the serum antitoxin level.

Unimmunized patients present a more difficult problem. It is impossible, in many instances, to decide whether a wound is tetanus-prone and the decision generally is made to give antitoxin. Sensitivity tests should always be performed because of the danger of serious immediate reactions. Delayed reactions, including serum sickness with severe neurological complications, cannot be predicted and will continue to occur as long as it is necessary to give antitoxin. The passive immunity conferred by antitoxin also decreases after repeated injections because the patient develops antibodies to the horse serum. For this reason

it is recommended that individuals who receive antitoxin also be given an initial injection of toxoid with instructions to return in four weeks to complete their active immunization.

School of Nursing

(Continued from page 109)

the full-time faculty, outstanding leaders in nursing have been invited to participate.

Not only has the interest of the Kansas nurses continued in the programs, but registration by nurses from surrounding states has increased steadily. The 1959-1960 Annual Report of the Department of Postgraduate Medical Education shows that eleven nursing programs were offered and that 12 states, including Kansas, were represented in the nurse enrollment of approximately 1,000.

By the fall of 1960, the Department of Nursing Education was ready to initiate the new program for graduate nurses to study on a bachelor's level. This program is designed to increase the competency of the registered nurse in professional nursing, to provide her with a satisfactory background for later specialization, and to increase her contribution to meeting the health needs of people and to nursing. Through the curriculum offerings, the nurse acquires a deeper and broader understanding of the social and natural sciences and relates these to the nursing care of patients. Approximately one-half of the program is in liberal education with the remaining portion in professional study. The nursing courses are offered on the Medical Center campus. The B.S.N. program, like the workshops and institutes, has been designed primarily for the nurses in Kansas. In developing it, quality of teaching and learning experiences is of utmost concern.

Those concerned with the Department of Nursing Education can be proud of its record of achievement and the service it gives to Kansans through the three educational programs in nursing. However, the department needs the support of all Kansans, especially those in the field of health, to ensure its continued growth and achievement.

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Enteric Bacilli

On the Hands of Hospital Food-Service Employees

RUTH STEINBERG and RUTH GORDON

THIS PRELIMINARY STUDY of the incidence of enteric bacilli on the hands of food-service employees was undertaken when bacteriological cultures of several tube feedings prepared with homogenized milk revealed somewhat higher coliform counts than did the milk used in their preparation. Frequently the patients requiring such feedings are debilitated adults or young children with impaired resistance to infection. Diarrhea is not an uncommon problem in patients fed by tube. Evaluation of the mode of handwashing practiced by employees handling food seemed pertinent if a possibility existed that employees might be contaminating food. Although numerous reports have been published on the bacterial population of china, glassware, silver and utensils^{1, 3} and on food,^{4, 9} little has been found concerning the bacterial status of the hands of food-service personnel. Harwood and Minch¹⁰ reported in 1950 a bacterial study of the hands of 34 food-handlers employed in 22 Boston restaurants in which the hands of only 12 individuals were free of coliform bacilli. *Escherichia coli* was isolated in 13 of the 34 samples.

Perhaps more often than we are aware the food and the hands contacting food may bear some relationship to the enteropathogenic organisms involved in the gastroenteritis seen in the hospitalized patient. Epidemic enteritis in hospitals and institutions responsible for the care of infants has been reported in which it was believed that certain enteric bacilli were involved.^{11, 14}

During the past 15 years a considerable amount of evidence has accumulated implicating certain strains of *Escherichia coli* in the diarrhea of infants and young children. A steadily increasing number of reports associate this organism with enteritis of epidemic and non-epidemic nature. Payne¹¹ reported that five epidemics in Arizona were associated with *E. coli* 055:B5, 0111:B4, and 0127:B8. Enteropathogenic *E. coli* were associated with 25 per cent of the 474 cases of acute diarrhea in infants less than 24 months old, but in the youngest group of infants, under two months of age where mortality rate is greatest, the percentage rose to 40. A cause and effect relation-

ship appeared to exist between these three serotypes of *E. coli* and infantile diarrhea. Similar reports in recent years by Horwood, Hutchinson and Armstrong^{12, 14} have also directed attention to these serotypes, and to others, in acute diarrheas and gastroenteritis in infants.

Infants and children during the first two to three years are particularly prone to enteritis associated with these enteropathogens but the adult is only infrequently host to such infections. Adults, however, are not immune to these organisms. Under normal conditions most healthy adults appear to be resistant but the possibility remains that debilitated adults are susceptible and that certain individuals may become carriers or excretors of these organisms. Hutchinson¹³ recently observed one nurse, among 123 adults, who was termed an excretor of *E. coli* 055:B5 during an epidemic of gastroenteritis among infants in England. Fecal examinations reported by Stevenson¹⁵ on 72 adults who were hospitalized for various reasons but all had some degree of diarrhea, revealed 14 cases in which *E. coli* D433 was isolated. The debilitated adult whose resistance is lowered, perhaps to that of the young child, may develop enteritis from ingesting material contaminated with certain types of *E. coli*. Ferguson and June¹⁶ fed gradient doses of *E. coli* 0111:B4 to 114 volunteer prisoners. With large experimental doses subjects experienced anorexia, diarrhea and toxic symptoms. One control subject, presumably infected by ingesting a small amount of contaminated material, became a carrier excreting the experimental organism, *E. coli* 0111:B4 in increasing numbers day by day. Experimental infections, following oral ingestion of these enteropathogens, have been produced by other investigators including Neter and Shumway¹⁷ and Koya and associates.¹⁸

There have been enteric organisms other than *E. coli* felt to be possible causal agents in outbreaks of gastroenteritis and diarrhea. Feig¹⁹ noted that in an outbreak involving 450 persons, and resulting in nine fatalities, the difficulty was attributed to the presence of *Pseudomonas aeruginosa* in food.

Neter's recent review of enteritis due to enteropathogenic *E. coli*¹² points out the importance of "adequate handwashing techniques" among the precautions necessary for prevention and control of epidemics of enteritis in institutions.

Ruth Steinberg, Assoc. Professor, Department of Dietetics and Nutrition, University of Kansas Medical Center. Ruth Gordon, Chairman, Department of Dietetics and Nutrition, University of Kansas Medical Center.

Since *E. coli* is considered an indicator of fecal pollution its presence in water, milk and food suggests the possible presence of other enteric pathogens and of filth. It is recognized that fresh produce and meats have a known high count of enteric bacilli^{20, 21} which logically can contaminate the hands of food-service workers. Dack²² states that "our environment and the non-sterile foods in our habitat contain enteric bacilli regardless of our efforts to eliminate them." It is understood that we can not hope to entirely eliminate these organisms from food but we can minimize the danger of additional contamination of food by teaching employees the importance of frequent and proper handwashing.

Facilities for handwashing in the food production and service areas of the Department of Dietetics and Nutrition are believed to be superior to those in existence in many hospital food-service areas. There are 22 lavatories in the units preparing and serving food. More than 170 employees utilize these lavatories which are equipped with chain-attached hand brush and nail file, and bar soap containing 2 per cent hexachlorophene. Hand driers of the warm-air type have replaced paper towels in most areas.

To determine the bacterial status of food-service employees' hands with respect to certain enteric bacilli 150 cultures were obtained from the hands of employees as they performed a variety of tasks in the preparation and service of food. The procedure for obtaining material from the hands of employees for cultures was suggested by the Department of Microbiology. Cultures were prepared from rinsings from the employees' hands. One person was responsible for collecting all samples. All subsequent preparation, examination and identification was done by the Department of Bacteriology. Samples were reported for the presence of the following enteric bacilli: *Escherichia coli*, *Aerobacter aerogenes*, *Pseudomonas*

aeruginosa, *Paracolon bacillus* and *Streptococcus faecalis*.

Results

One or more enteric bacilli were identified in 48 of the 150 cultures done from the rinsings of the employees' hands while performing routine tasks in the food-service areas. *Aerobacter aerogenes* which occurred with the greatest frequency was isolated in 33 of the 48 positive cultures. *Escherichia coli* was identified in 15 cultures or in 10 per cent of all cultures done. The other three organisms were reported less often as the accompanying table indicates.

The fifteen employees from whose hands *E. coli* was isolated were performing a variety of duties at the time sampling of their hands was done. Their work activities are listed in Table II.

TABLE II
WORK ACTIVITY OF EMPLOYEES FROM
WHOSE HANDS ESCHERICHIA COLI
WAS ISOLATED

| Work Activity | Positive Cultures |
|--|----------------------|
| Preparation of Formula and Tube Feeding | 5 |
| Preparation of Other Foods | |
| Handling Lettuce | 3 |
| Handling Raw Beef | 1 |
| Handling Commercially Peeled Potatoes . | 1 |
| Slicing Peeled Washed Onions | 1 |
| Portioning Baked Desserts | 2 |
| Service of Food | 0 |
| Clean-up Operation | |
| Rinsing Used Infant Formula Bottles | 1 |
| Cleaning Food Conveyors | 1 |
| | 15 |

TABLE I
INCIDENCE OF CERTAIN ENTERIC BACILLI ON THE HANDS OF
FOOD-SERVICE EMPLOYEES

| Organisms | Preparation of Formula and Tube-Feeding | Preparation Other Food | Service of Food | Clean-up Operation | Supervisory | Total |
|-------------------------------------|---|------------------------------|-----------------------|-----------------------|-------------|-------|
| <i>Escherichia coli</i> | 5 | 8 | 0 | 2 | 0 | 15 |
| <i>Aerobacter aerogenes</i> | 7 | 17 | 7 | 2 | 0 | 33 |
| <i>Paracolon bacillus</i> | 0 | 2 | 0 | 0 | 0 | 2 |
| <i>Streptococcus faecalis</i> | 0 | 1 | 1 | 0 | 0 | 2 |
| <i>Pseudomonas aeruginosa</i> | 0 | 2 | 1 | 0 | 0 | 3 |
| Total Number of Cultures | 24 | 53 | 47 | 17 | 9 | 150 |
| Positive Cultures | 11 | 25 | 9 | 3 | 0 | 48 |

TABLE III
ENTERIC BACILLI ON FRESH PRODUCE

| Produce | Colony Count | <i>Aerobacter Aerogenes</i> | <i>Pseudomonas Aeruginosa</i> | <i>Paracolon Bacillus</i> | <i>Streptococcus Faecalis</i> |
|-------------------------------|-----------------------|-----------------------------|-------------------------------|---------------------------|-------------------------------|
| Lettuce, unwashed | too numerous to count | + | 0 | + | + |
| Lettuce, routine wash | too numerous to count | + | 0 | + | 0 |
| Lettuce, 1 extra wash | 405/.2 cc. | + | 0 | 0 | 0 |
| Lettuce, 2 extra washes | 260/.2 cc. | + | 0 | 0 | 0 |
| Lettuce, 3 extra washes | 184/.2 cc. | + | 0 | 0 | 0 |
| Radishes, routine wash | - | + | + | + | 0 |
| Onions, unwashed | - | 0 | + | 0 | 0 |
| Onions, routine wash | - | 0 | + | 0 | 0 |
| Tomatoes, unwashed | - | + | 0 | 0 | 0 |
| Eggs, in case, unwashed | - | 0 | 0 | 0 | + |

None of the hand brushes used at the lavatories in the work areas revealed the presence of any of the five enteric organisms reported here.

The identification of enteric organisms on fresh produce revealed the presence of no *Escherichia coli* on the samples of food examined. Because of the fact that the hands of the first employee whose hands were sampled while handling lettuce were reported positive for all five organisms, cultures were taken from lettuce washed through extra waters, and plate counts were included. The number of colonies diminished as the lettuce was washed a greater number of times. Table III shows the distribution of the four enteric bacilli found on the produce.

Discussion

Although no attempt was made in this preliminary work to identify the serological types of *E. coli* found on employees' hands the possibility remains that enteropathogenic types were present.

Examination of the list of tasks (Table II) performed by employees from whose hands *E. coli* were isolated reveals that while mixing formula 5 positive cultures were obtained. Two of these cultures were taken from the same person on different days. Although terminal sterilization of infant formulas is routine in this hospital the standard procedure for employees prior to mixing formula is a three-minute hand scrub using a sterile brush without touching the water taps after the scrub is started. Although employees are discouraged from wearing rings, other than a simple wedding ring while working, they have not consistently complied with this suggestion. This particular employee was in the habit of wearing both a wedding ring and an engagement ring while working in the formula room. A negative culture

was not obtained until a third sampling was done on her hands while she wore only the plain wedding ring.

Eight positive cultures for *E. coli* were found among the 53 samples from areas where other foods were prepared. In some cases the type of material could explain the presence of *E. coli* on the employees' hands. In 6 of the 8 instances the employees were working with raw vegetables or meat which are known to be contaminated to varying degrees with enteric organisms.^{20, 22} Although the few samples of raw produce cultured in this study did not reveal the *E. coli* organism, its presence may be expected on unprocessed food. However, two employees who were portioning desserts at the time samples were taken did have cultures which were positive for *E. coli*.

No positive cultures for *E. coli* were found among the 47 samples from employees involved in the actual service of food to patients or personnel.

Two positive cultures for *E. coli* were reported among the 17 persons concerned with clean-up operations such as scraping dishes, dishwashing, cleaning food conveyors and removing kitchen waste. One of these persons handled used infant formula bottles, and the other cleaned a food conveyor which had been in the patient area. Contamination of the bottles and cart may have occurred in the patient area, but this is pure conjecture. It may have been present on the food-service employees' hands.

In this preliminary work on 150 bacteriological cultures from the hands of food-service employees one or more of the five enteric bacilli studied were identified in 32 per cent of the workers. Ten per cent of the cultures revealed the presence of *Escherichia coli*. More extensive work is, of course, needed to

(Continued on page 119)

Medical Technology

Past, Present and Future

R. J. EILERS, M.D., *Kansas City, Kansas*

MEDICAL TECHNOLOGY is one of the fifty or more allied health fields working with physicians today in patient care. Although these fields have been a necessary corollary to the development of scientific medicine practiced today, considerable lack of understanding has developed among physicians concerning these fields, especially, their scope and effect on patient care and the necessary qualifications for competent personnel in the fields. This brief survey of facts is offered for better understanding of the field of Medical Technology.

Origins of Medical Technology

The beginnings of Medical Technology in this country are entwined with the rapid development of laboratory medicine after the turn of the century.¹ Since laboratory medicine was introduced into this country from the German speaking countries, it began by the physician performing the simple tests of hematology and urinalysis in a laboratory on the ward or in his office. These tests were done in conjunction with the physical examination. Frequently, in teaching centers the tests were taught to the medical students in physical diagnosis.

As the value of these simple tests to medical care became established, the demand for them increased and the need arose for the busy physician to have a trained person to carry out these tests for him. Although in teaching centers this was partly solved by resident and medical students performing the tests, in non teaching hospitals and physician offices on the job training of bright high school graduates or college students began to provide trained laboratory personnel. Impetus was given to the need for this trained personnel with the discovery of blood groups, the introduction of chemical procedures which could be done on reasonable amounts of blood and urine from patients, and the development of the techniques of bacteriology. All of these procedures required skills and background which the busy physician did not have time to acquire so he could teach to others. Of necessity, full time or part time laboratory physicians in conjunction with basic scientists took over many medical laboratories to establish these techniques and teach them to trainees. This began the rather rapid evolution of the general laboratory worker who had

the knowledge and art of technics—the medical technologist.

Evolution of Medical Technology²

1900-1910—On the job training of personnel in hospital laboratories and physicians offices to do the desired simple laboratory procedures of urinalysis and hematology.

1910-1920—Discovery of blood groups, introduction of clinical chemistry and bacteriology stimulated development of hospital training programs for general laboratory workers to provide these procedures for patient care. World War I particularly accentuated the need for trained personnel for blood transfusion work in the armed forces.

1926—American Society of Clinical Pathologists (ASCP) formed a committee to study standards for training of medical technicians.

1928—ASCP reorganized the study committee and named it The Board of Registry of Medical Technicians of the ASCP.

1929-1933—The Board of Registry certified practicing laboratory workers recommended by pathologists as qualified candidates. No examinations were required.

1930—Dr. Hillkowitz, the Chairman of the Board of Registry, at this time, defined the usage of the terms medical technologist and laboratory technician. He defined the medical technologist as one who has a University degree and at least one year of practical experience in a recognized laboratory. The laboratory technician was an old term and used to designate the experienced laboratory worker who has no college training.

1933—Applicants for the Registry were required to take an examination. Also, applicants were required to have a minimum of 30 semester hours of college credit including 8 hours of college chemistry. The Board of Registry of ASCP requested the Council on Medical Education and Hospitals of A.M.A. to make a survey of Schools for Clinical Laboratory Technicians.

1936—The report of this Survey was published and accepted by the A.M.A. legislative body. During this survey the Council staff visited 196 schools and found three general types.

1. *College or University* (26 in number). These required a college degree or three years of college

Dr. Eilers is Assistant Professor of Pathology and Director of Clinical Laboratories, University of Kansas Medical Center.

work before entering the 12 month practical training in the affiliated hospital laboratory department. Usually on completion of the hospital training a B.S. in Medical Technology was conferred.

2. *Hospital Laboratory Department* (149 hospital schools and 12 in independent laboratories). Course conducted on an apprenticeship basis. Students were admitted after one to four years of prerequisite college preparation.

3. *Commercial Schools* (nine in number). These were characterized by acceptance of students regardless of preparation. They did extravagant advertising, made promises of placement, and charged large tuitions. These were not considered acceptable schools by the A.M.A.

In the same publication containing the survey, the first list of A.M.A. Approved Schools for Clinical Laboratory Technicians was recorded. They were the schools in the first two categories above. The Essentials of an Acceptable School for Clinical Laboratory Technicians were also outlined.

1937—The name of the Board of Registry of Medical Technicians was changed to the Registry of Medical Technologists of ASCP.

1938—The prerequisite minimum college work to enter an A.M.A. Approved School of Medical Technology was changed to 60 semester hours including 12 hours of biological science and nine hours of chemistry. The hospital training program continued to be 12 months.

1949—The Board of Schools of Medical Technology was organized by the ASCP to assist the Council on Medical Education and Hospitals to approve, inspect and elevate the standards for training schools of Medical Technology. This established the inspection of schools on a five year basis.

1958—The A.M.A. Council on Medical Education announced new prerequisites for admission to an A.M.A. Approved School of Medical Technology effective January 1, 1962. The education requirements will be 90 semester hours including 16 hours of chemistry, 16 hours of biological science and a minimum of three hours of college mathematics. When this three years of college work is integrated with professional training in a hospital school affiliated with the college or university, the four year program could lead to a baccalaureate degree in medical technology.

1960—Reports from the Registry, Council of Medical Education and Board of Schools show 734 A.M.A. Approved Schools listed with a capacity for 5,563 students.³ Actual enrollment was 3,944 students or 71 per cent filled. As of June 19, 1959, 34,554 Medical Technologists had been registered since 1928 and 26,374 were currently registered.

This evolutionary calendar reveals the change from the on the job trained laboratory worker for doing simple procedures to the college graduate medical technologist capable of doing simple to complex techniques in chemistry, bacteriology, hematology, blood banking, histology, and urinalysis. The medical technologists have matured into another professional group to provide service for the physician and his patient. Their national organization, the American Society of Medical Technologists, actively participates with the Council on Medical Education and Hospitals of the A.M.A., and the Board of Schools of the ASCP to improve standards of training and the quality of laboratory work in this country.

Kansas Programs

There are eleven A.M.A. Approved Schools of Medical Technology in Kansas located as follows:³

| | |
|---|-------------|
| Grace Hospital | Hutchinson |
| *St. Elizabeth Mercy Hospital | Hutchinson |
| *Bethany Hospital | Kansas City |
| Providence Hospital | Kansas City |
| University of Kansas Medical Center ... | Kansas City |
| Bethel-Deaconess Hospital | Newton |
| Lattimore-Fink Laboratories | Topeka |
| St. Francis Hospital | Wichita |
| Wesley Hospital | Wichita |
| Wichita St. Joseph's | Wichita |

Total student capacity in these schools is 101 and usually they are 60-75 per cent filled. All of these schools are college or university affiliated except the two with asterisks.

K.U. Programs

From inception in 1929, the medical technology program at K.U. has been a five-year program. The students complete an A.B. degree on the Lawrence Campus before entering the 12 month certificate course at the Medical Center. Usually, the A.B. degree is in bacteriology, but other degrees are accepted if the student has had the minimum course hours in chemistry, biological science and mathematics recommended by the Council on Medical Education and Hospitals of the A.M.A. Graduates from other colleges and universities are considered on the same basis.

In 1954, a four-year program was established leading to the B.S. in Medical Technology. The students spend three years on the Lawrence Campus or the Campus of Kansas State University at Manhattan taking the necessary prerequisite college work before entering the certificate course at the Medical Center. The certificate course provides the student with 30 hours of college credits towards his B.S. degree.

Approximately 379 graduates have completed these two programs. Of these 30 per cent are still actively working in the state of Kansas and 30 per cent more

in other states. Of interest is another 20 per cent who maintain an inactive status with the ASCP Registry indicating their eventual intent to return to active work in Medical Technology. This group will require the availability of refresher postgraduate programs for them. Likewise, the actively working medical technologists need available postgraduate programs to advance their knowledge and skills.

Postgraduate Programs

Since 1949-50 the K.U. Postgraduate Medicine Department has offered an annual three-day Postgraduate Course in Medical Technology. The program offers graduate technologists an opportunity to refresh and improve old methodology, and gain knowledge of new methodology in laboratory medicine. Outstanding guest scientists describe and demonstrate new methods and discuss their value as parameters in laboratory medicine. Workshops provide opportunities to the registrants to try new methods and discuss the difficulties of the methods with colleagues who are using them. Demonstration sessions provide exposure to new equipment, research tools and methods, teaching aids and surveys of a particular laboratory subject.

In 1960 two Technology Traineeships were announced. Refresher course A offers the qualified laboratory worker who has been inactive for a number of years a six-month refresher course to review basic methods and gain experience with new methods and equipment. Refresher course B offers actively working technologists an opportunity to improve their skills and knowledge in a particular section of the laboratory. The course time for B varies from two weeks to three months depending upon laboratory experience desired and background of the candidate.

The statistics concerning registrants who attend the annual Postgraduate Course reveal they come from not only the small and large hospitals and clinics in Kansas and Missouri but from many other states throughout the country. (See Tables I and II.) Slowly this course has developed a national reputation for providing an educational opportunity for laboratory workers of all levels. The common sharing of an educational experience by the various levels of laboratory workers can frequently lead to better relations between these workers and to the development of a common working goal of quality patient care.

| TABLE I | | | | | |
|-------------|---------------|-----------|-----|-------|---------------------|
| Course Year | Regis- trants | By States | | | No. of Diff. States |
| | | KAN. | MO. | OTHER | |
| 1950 | 213 | 128 | 76 | 9 | 6 |
| 1960 | 366 | 147 | 103 | 116 | 18 |
| 1961 | 470 | 132 | 168 | 170 | 21 |

Frequently, the registered technologist with only two years of college work is returning to the campus to complete an A.B. or B.S. degree in a science. Others are entering master programs in medical technology or allied fields to improve their professional knowledge and ability to provide more complex methodology and quality service for patient care. Many of the technologists working in medical laboratories today are capable of doing research on technics and methods for improved patient care if given the opportunity in the laboratory, i.e., time and space.

Future

As in the past, the future of Medical Technology will remain entwined with the development of Laboratory Medicine. Perusal of the table of contents of most medical and laboratory journals indicates both of these fields will incorporate more complex tech-

TABLE II
FROM 452 REGISTRANTS' QUESTIONNAIRE
YEARS 1960 AND 1961

| Question | Kansas | Missouri | Other States |
|---|--------|----------|--------------|
| Registered? (includes ASCP and AMT) . | 113 | 91 | 195 |
| Degrees? No | 46 | 44 | 68 |
| A.B. or B.S. | 82 | 45 | 130 |
| M.S. | 1 | 6 | 17 |
| Ph.D. or M.D. | 1 | 3 | 9 |
| Where Employed? | | | |
| Hospital <100 beds . . . | 64 | 25 | 59 |
| >100 beds | 32 | 45 | 111 |
| Misc. (Office, Clinic, Indust.) | 33 | 21 | 46 |
| Supervisor? | 63 | 41 | 165 |
| Teaching Responsibility? . . | 34 | 39 | 134 |

niques each year—not only into their research, but also into the routine laboratories providing service for patient care. Consider the possibilities of routine viral studies, tissue antibody techniques, quantitative chemical techniques on tissue, immunoelectrophoretic studies, other advance physical methods applied to blood, body fluids and tissue, autotransfusions via freezing techniques, elaborate hormone analysis, etc. Likewise, there will be further automation to handle not only routine studies but also the more complex methods. Automation will provide greater availability of the tests, a more rapid processing of the tests, reduction in cost, and greater accuracy.

The incorporation of more new techniques into the medical technology field will intensify present prob-

lems and raise further problems for this maturing profession. For example:

1. Increased prerequisite educational requirements for the general technologist (physics, microbiology, etc.).

2. The question of training the general medical technologist or the technologist specialist or both.

3. The necessity of the non-technologist specialist in the laboratory and his working relationships with the technologist.

4. The need for categories of laboratory workers, i.e., laboratory aide, technicians trained for specific laboratory duties, the general medical technologist, and the technologist specialist.

5. With various categories of laboratory workers is there a need for more than the one Registry now recognized by the A.M.A.? There have developed several registry boards for certifying groups in conjunction with organizations of laboratory workers.

6. Will the voluntary registration now in effect suffice or is there need for licensure of technologists? Four states now have licensure laws for technologists.⁴

7. Will the technologists undergo unionization or will their professional society be sufficient to maintain rapport with physicians and administrators about salary, qualified personnel, and working relations?

The above are common problems which have faced other professions during their growth and development, but eventually solved with aggressive, intelligent leadership and individual activity and pride in his profession.

The Challenge

To the medical technologist the above problems demand a solution and plan of action to nurture the further maturity of his chosen profession. This will require a self inventory of abilities and goals, decisions with plans, and active participation in his professional society and programs for self development.

To the physician these problems should also demand concern since the medical technologist is "his hands" in the laboratory performing the necessary tests for his scientific practice of medicine. This requires the physician to have knowledge of "his hands"—their qualifications and abilities, quality of results they produce, and their plans for further development. This knowledge can be easily obtained through the development of a connective line of communication between the physician and "his hands"—the medical technologist.

References

1. Smith, H. P.: Clinical Pathology: Its Creators and Its Practitioners, *Am. J. of Clin. Path.* 31:283-292 (April) 1959.
2. Arnold, J. G.: Current Educational Standards in Medical Technology, *Am. J. of Med. Tech.* 26:101-109 (March-April) 1960.
3. Taylor, A. N., and Hinsman, J.: Educational Programs

of Allied Medical Services, *J.A.M.A.* 174:1477-1494 (November 12) 1960.

4. Note: The Desirability of State Licensing of Medical Technologists, *Minn. Law Rev.* 44:1125-1148 (May) 1960.

Enteric Bacilli

(Continued from page 115)

show whether the *E. coli* found on food-service workers' hands are pathogenic types and also to determine what procedures might best protect food from contamination, or keep it at a minimum, in any institution where patients are fed. Until some of these questions are answered we should intensify the teaching of employees in proper handwashing techniques and develop in the personnel a better understanding of the importance of good hand hygiene. It may be that with better motivation hand washing habits could be improved. Emphasis should undoubtedly be placed on (1) more thorough washing, using a proper technique, (2) enforcement of a rule forbidding the wearing of rings, (3) thorough washing of hands on completion of each different task particularly those which involve handling raw food to prevent transfer of contamination from raw foods to cooked foods.

References

1. Saelhof, C. C. and Heinskamp, W. J. R., *Amer. Jour. Public Health*, 10:704, 1920.
2. Buchbinder, L., Buck, T. C., Phelps, P. M., Stone, R. V. and Teideman, W. D., *Amer. Jour. Public Health*, 37:373, 147.
3. Kleinfeld, H. J. and Buchbinder, L., *Amer. Jour. Public Health*, 37:379, 1947.
4. Larking, E. P., Litsky, W., and Fuller, J. E., *Amer. Jour. Public Health*, 46:464, 1956.
5. Rettger, L. F., Hull, T. G. and Sturgis, W. W., *Jour. Exp. Med.*, 23:475, 1916.
6. Wiedman, K., Watson, W. A., Neill, J. and W. G., *Jour. Amer. Diet. Assoc.*, 32:935, 1956.
7. Wiedman, K., Watson, M. A., *Jour. Amer. Diet. Assoc.*, 33:37, 1957.
8. McDivitt, M. E. and Hussemann, D. L., *Jour. Amer. Diet. Assoc.*, 35:238, 1957.
9. Weiser, H. H., Winter, A. R. and Lewis, M. N., *Food Research*, 19:465, 1954.
10. Horwood, J. P., and Minch, V. A., *Bact. Proc.*, 14, 1950.
11. Payne, F. J., *Public Health Reports*, 75:534, 1960.
12. Herweg, J. C., Middlekamp, J. N., and Thornton, J. K., *Jour. Pediat.*, 49:629, 1956.
13. Hutchinson, R. I., *Jour. Hygiene*, 55:27, 1957.
14. Armstrong, J. G., *Jour. Pediat.*, 53:704, 1958.
15. Stevenson, J. S., *Brit. Med. Jour.*, 2:195, 1950.
16. Ferguson, W. W., and June, R. C., *Amer. Jour. Hygiene*, 55:155, 1952.
17. Neter, E., and Shumway, C. N., *Proc. Soc. Exper. Biol. and Med.*, 75:504, 1950.
18. Koya, G., Kosakai, N., Konon, M., and Fukasawa, Y., *Ja. Jour. Med. Sc. and Biol.*, 7:197, 1954.
19. Fieg, M., *Amer. Jour. Health*, 40:1372, 1950.
20. Jensen, L. B., *Microbiology of Meats*, 3rd ed. Chicago: Univ. of Chicago Press, 1956.
21. Rudolis, W., Falk, L. L., and Ragatzkie, R. A., *Sew. and Ind. Wastes*, 23:739, 1951.
22. Dack, G. M., *Amer. Jour. Public Health*, 45:1151, 1955.



Convulsions, Lethargy, Fever and Coma

Case Presentation

A 55-YEAR-OLD WHITE MAN with a history of convulsions was admitted to KUMC for the first time on August 6, 1959, and he died on August 14, 1959.

During the past two years he had noticed unusual clumsiness of his hands, and for the past six months he had complained of a "crawling" sensation over the left side of his forehead. He had also complained of intermittent frontal headaches and some slight stiffness of his neck for several months.

On June 24, 1959, while at breakfast, he suddenly slumped over the table and had clonic convulsive movements of his arms and legs. He was unconscious for about eight minutes, and afterwards he felt "sleepy." He had no incontinence. At that time he was seen by his local doctor and placed on a daily dose of 300 mg. of diphenylhydantoin sodium with 30 mg. of phenobarbital to be taken at bedtime. He apparently did well and seemed to be normal until August 5 when again at breakfast he had another similar episode and slumped over and had convulsive movements of his arms. He was unconscious for about four minutes and afterward was somnolent. His wife stated that during the time between his first and second seizure he would fall asleep easily during the day whenever he sat down. Following the second convulsion he had a fever of 104 degrees, and he was hospitalized in his local community. He seemed to be normal during that time until the morning of his admission here when he became unsteady and had poor articulation. On his way to this hospital he rambled incoherently. His decreased awareness and incoherence fluctuated from time to time after admission.

Edited by Jesse D. Rising, M.D. and Mahlon Delp, M.D. from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

In 1946 he had had two hernia repairs and a right nephrectomy because of a stone; otherwise he had had no serious illnesses.

His family history was non-contributory. The system review was within normal limits.

The patient was a well developed, well nourished, somnolent white man who responded to questions but drifted easily to sleep. His blood pressure was 130/80; pulse, 100 and regular; respiration, 14 per minute; temperature, 103 degrees. His head was normal, and his neck was supple. The pupils were round, regular and equal, and reacted to light and accommodation; the extra ocular muscles were intact. There was slight first degree horizontal nystagmus on right and left lateral gaze. The fields were full, and fundi were negative. The ears were normal, and the canals were clear. The palate moved only slightly, and there was no gag reflex. The tongue was normal.

Examination of the chest was negative except for bilateral rhonchi in the lungs. The heart had a regular sinus rhythm, and there were no thrills or murmurs. The bladder was distended and reached the level of the umbilicus, but the abdomen was otherwise soft, and no organs or masses were felt. The extremities were normal. The neurological examination showed clouding of the sensorium and somnolence. Cranial nerves II through XII were tested and nystagmus, poor palatal movement and absent gag reflex were the only positive findings. The motor examination was negative. Cerebellar function tests were not done because of the patient's poor cooperation. He responded to pinprick bilaterally, and the corneal reflexes were intact. No meningeal signs were present. There was diffuse hyperreflexia with abdominal reflexes, and the toe signs were downgoing.

On two occasions the urine showed a faint trace of albumin with a few pus cells. Both urine cultures were negative. On admission the white count was 13,700 with 70 per cent polymorphonuclear neutrophils (69 per cent filamented and 1 per cent non-

filamented), 22 per cent lymphocytes, 8 per cent monocytes. The hematocrit was 43 ml., and the hemoglobin was 13.4 gm. per cent. Platelet counts were 124,000 and 163,000 on two occasions. The VDRL was non-reactive. The BUN was 35 mg. per cent; blood glucose, 122 mg. per cent; carbon dioxide, 21.2 mEq/L; sodium, 130 mEq; potassium, 5.1 mEq; chloride, 91 mEq. The spinal fluid on August 6 showed 9 white cells; 2 red cells; a flat colloidal gold curve; sugar, 87 mg. per cent (at which time the blood sugar was 204 mg. per cent); total protein, 38 mg. per cent. On August 9 the spinal fluid contained 768 red cells and 46 white cells with 15 per cent polymorphonuclears, 85 per cent lymphocytes. The CSF sugar was 95 mg. per cent (blood sugar, 122 mg. per cent); protein, 43 mg. per cent. On August 12 the spinal fluid showed 101 white cells with 30 per cent polymorphonuclears, 70 per cent lymphocytes. The CSF sugar was 67 mg. per cent (115 mg. per cent blood sugar); protein, 191 mg. per cent. The blood ammonia was 70 gamma per cent. Liver function studies were: alkaline phosphatase 1.6 millimole units, total serum bilirubin 0.3 mg. per cent, direct serum bilirubin 0.1 mg. per cent, cephalin cholesterol 1 plus, thymol turbidity 2 units, serum albumin 2.48 gm. per cent, serum globulin 2.08 gm. per cent, cholesterol 183 mg. per cent (with 65 per cent esters). Several blood cultures were all negative at 72 hours. The acid phosphatase was 0.4. Cephalin flocculation was 1 plus. Febrile agglutinations were negative with the exception of typhoid O which was positive 1:20 and paratyphoid A, positive 1:40. Nose and throat cultures grew out non-hemolytic staphylococci. Tuberculin and histoplasmin skin tests were negative at 48 hours. Routine smears and culture of the spinal fluid were negative as were India ink and acid fast stains. On the first spinal tap the pressure was 239 mm. and the fluid was crystal clear; on the second the pressure was 90 mm. with crystal clear fluid; on the third the pressure was 110 mm. with slightly xanthochromic fluid. The Kolmer test was negative.

An electroencephalogram taken on August 10 showed a poorly organized record for an adult with pseudo-rhythmical activity predominating at times as spike and slow wave in the left temporal region at one and one-half second intervals and at times as right temporal slow waves at 2 to 3 second intervals. The impression was a markedly abnormal electroencephalogram.

The patient's temperature was 103 degrees on admission, and it remained elevated throughout most of his hospitalization occasionally rising to 104 degrees. On the day of admission he was placed on diphenylhydantoin sodium, procaine penicillin, and streptomycin, and these were continued throughout

his hospitalization. On August 8 he was started on 500 mg. of tetracycline every six hours and phenobarbital, intramuscularly. He had numerous seizures, most of which began on his left side with only occasional seizures beginning on his right side. All, however, terminated in a generalized tonic-clonic convulsion. On the day following admission he became somnolent, and thereafter did not respond to painful stimulation. On August 11 bilateral carotid arteriograms were done. During the last three days of his life he continued to have a high fever, and he was tachypneic and completely comatose. During the last week he required continuous bladder drainage and tube feedings. On August 14 at 7:45 p.m. no blood pressure or pulse was obtainable, and he was pronounced dead.

Dr. Mahlon Delp (moderator): Are there any questions?

Russell Settle (student):* Can you describe more fully the patient's symptoms and his course after the first convulsion?

Dr. Harry White (resident in neurology): He responded to questions and seemed to be perfectly rational. After the onset of his symptoms he had continued to work as an aircraft employee, only occasionally complaining of a slight headache and some stiffness of his neck. His wife said that he fell asleep easily if he sat down. He had been on medications at that time.

Jonathan Todd (student): Did he have any vomiting at any time?

Dr. White: He vomited occasionally, but he had a naso-gastric tube because of slow gastric emptying.

Eleanor Siegel (student): Did he receive intravenous fluids?

Dr. White: Only until the gastric tube was inserted.

Dean Stucky (student): Why was he catheterized?

Dr. White: Because he had urinary retention on admission.

Mr. Stucky: Was the catheter left in?

Dr. White: On the second hospital day he became more comatose, so the catheter was kept in.

Douglas Sheafor (student): Did he have a history of alcoholism?

Dr. White: No, he did not.

Mr. Stucky: Was there a history of trauma?

Dr. White: No.

Mrs. Siegel: Were more blood counts and serum electrolyte determinations done?

Dr. Delp: Subsequent complete blood counts showed a leukocytosis similar to that recorded in the

* Although a student at the time of this conference in December, 1959, he, like the others referred to as students received the M.D. degree in June, 1960.

protocol. Total white counts were 14,000 to 10,000. Electrolytes were drawn several times: serum sodium was 130 to 126 mEq; potassium, 5.1 and 4.3 mEq; chloride, 91 and 87 mEq. The hemoglobin went from 13 to 11 grams.

Mr. Stucky: What was his temperature course while he was in the hospital?

Dr. Delp: His temperature was elevated all of the time, and sometimes as high as 104 degrees.

Mr. Settle: Did he have any nuchal rigidity at any time?

Dr. White: Not that I recall.

Earl Wright (student): Had he been exposed to any toxins in his work?

Dr. White: He was employed in the painting department of an aircraft plant, but I am not sure whether he was exposed to any toxins.

Mr. Sheafor: Were rales heard in the chest at any time?

Dr. White: Dry rales and rhonchi were heard in the chest throughout his hospitalization.

Dr. Delp: If there are no more questions we will have the electrocardiograms.

ELECTROCARDIOGRAMS

Mr. Todd: An electrocardiogram taken on the second day after admission (*Figure 1*) shows a rate

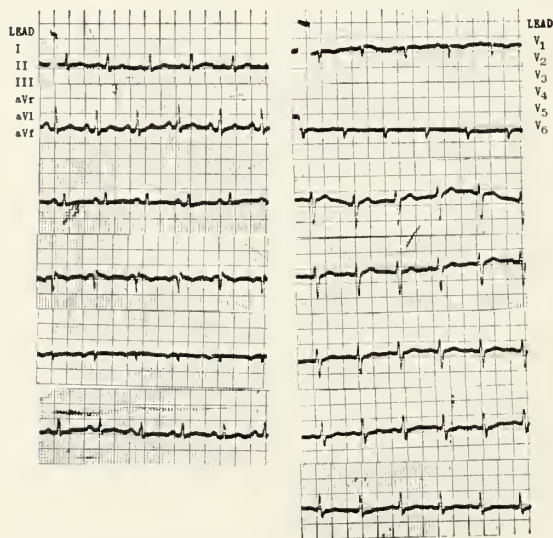


Figure 1. Electrocardiogram taken on August 7, 1959.

of 110 to 120 with a normal, sinus rhythm. The P waves are slightly peaked and about 2.5 mm. high. The P-R interval is within normal limits. The R waves are somewhat low with voltage; there is never a high R wave to suggest rotation. The S-T segments are not depressed, and the T waves are normal. Because of the peaked T waves I interpret this tracing

as compatible with pulmonary emphysema. The tachycardia is consistent with high temperature.

Dr. Delp: Thank you, Mr. Todd. May we have the x-rays now, please?

X-RAYS

Mrs. Siegel: A chest film taken on August 7, the day after admission, shows normal bony structure and a normal heart. The lung fields are clear, and the costophrenic and cardiophrenic angles are not blunted. A lateral view of the chest shows clear costophrenic angles, and there is no basal pneumonitis. I interpret it as a normal chest film.

A carotid arteriogram taken on August 11 (*Figure 2*) shows good filling of the anterior cerebral, the



Figure 2. Carotid arteriogram taken on August 11, 1959.

supra callosal, and middle cerebral arteries. Bony structures are normal, and there are no calcifications. A film taken at the same time as the lateral view shows the anterior cerebral artery in the midline which tends to rule out a space-taking lesion above the tentorium. A film taken approximately one second later is in the late arterial phase and shows no sign of any atypical cerebral disease.

A KUB film on August 11 shows the Levine tube in the stomach and the indwelling catheter in the bladder. Bony structures appear to be normal. I can-

not define the psoas shadow because of gas in the bowel. The left kidney is outlined, and there is some dye in the kidney and in the bladder. No abnormalities are seen in the KUB film, and I interpret these films as normal.

Dr. Delp: Thank you. May we have your comments, Dr. Youngstrom?

Dr. Karl Youngstrom (radiologist): I just want to point out that although the left kidney shows quite well the right kidney does not.

Dr. Delp: May we have your differential diagnosis now, Mr. Wright?

Differential Diagnosis

Mr. Wright: My differential diagnosis is based on the sudden onset of convulsions, lethargy and fever leading to coma and death in a 55-year-old man.

Congenital and heredito-degenerative diseases such as lipoidosis and cerebral sclerosis can be ruled out because of the incompatible history and physical findings as well as the clinical course. Idiopathic epilepsy can be excluded because of the patient's age and because of the usually benign course of that disease. Collagen diseases such as disseminated lupus erythematosus, periarteritis nodosa, and blood dyscrasia can be dismissed because of the lack of history and appropriate physical findings. General metabolic diseases and manifestations such as hypoglycemia, uremia, and alkalosis as well as miscellaneous disorders such as hypothyroidism and heat stroke can be eliminated because of the lack of appropriate blood chemistry, history and physical findings. Cerebrovascular diseases are characterized by a gradual onset, prodromal periods, vascular insufficiency and localizing signs and symptoms. Cerebral embolus can be ruled out because of the absence of extracranial sources such as endocarditis or atrial fibrillation.

Intracerebral hemorrhage usually presents with early, persistent localizing signs, and there is bloody cerebrospinal fluid in about 70 per cent of these cases. The lack of signs of severe meningeal irritation and bloody spinal fluid excludes subarachnoid hemorrhage.

Neoplasm is an attractive diagnosis. Tumors of the anterior fossa can produce generalized convulsions and fever. It is difficult, however, to reconcile that diagnosis in the absence of signs of localizing sensory and motor impairment, especially in view of the rapid course without signs of increased intracranial pressure. Nevertheless, subcortical neoplasms such as glioblastoma multiforme can produce such a clinical picture, particularly if it extends to the meningeal or ventricular surfaces. The possibility of scattered metastatic malignant lesions either from a glioma or from an extracranial tumor producing a so-called gliomatosis and carcinomatosis cannot defi-

nately be excluded. Although there were no signs of increased intracranial pressure and no indication of extracranial malignancy from which metastases could arise, this does not preclude the diagnosis.

Finally, I will give first consideration to infectious diseases of the central nervous system. The diffuse cerebral symptoms such as coma, confusion, convulsion, and headache without distinct localizing signs such as hemiplegia, cranial nerve palsy and motor or sensory deficit can be consistent with encephalitis. The cerebrospinal fluid findings and protracted fever tend to support that diagnosis. I do not believe a bacterial organism was causative because of the absence of meningeal irritation, the negative cerebrospinal fluid cultures and smears, the normal cerebrospinal fluid sugar, and the predominant lymphocytic leukocytosis. An inadequately treated bacterial meningitis may smoulder along with many of these same symptoms, but there is nothing in the patient's history to warrant its consideration as a primary diagnosis. A cerebral abscess with diffuse seeding could be postulated, but the absence of an extracranial source, distinct localizing signs and increased intracranial pressure militate against that diagnosis. Fungal diseases which can affect the central nervous system such as cryptococcosis, nocardiosis, histoplasmosis and blastomycosis are rare in the absence of systemic manifestations. I would also like to point out that the India ink preparation and cultures of cerebrospinal fluid were negative. In luetic meningeal encephalitis one would expect to find a positive serology, a greater meningeal component and localizing signs.

My diagnosis is viral encephalitides. The findings of cerebrospinal fluid pleocytosis with lymphocytes predominating, normal cerebrospinal sugar, and normal or elevated protein gives strong diagnostic support to a diagnosis of epidemic viral encephalitides. The enteric virus group may be excluded. Poliomyelitis characterized by myalgia, marked meningeal irritation and paralysis presents a symptom complex incompatible with our case. Coxsackie infections often present with many of the same symptoms. ECHO virus may be dismissed because of its usually benign course. We do not need to consider the post-infectious encephalitides because there is no history of antecedent infection. Consistent with a prolonged course and fatal termination, however, are the epidemic equine and St. Louis encephalitides and a number of sporadic viral infections such as mumps, herpes simplex, and the so-called nuclear inclusion encephalitides from which no viruses have as yet been isolated. It is difficult to differentiate the individual agent on clinical grounds, and I can only speculate that the viral etiology is confined to the epidemic arthropod-borne viruses or to one of the sporadic viral infections which affect the central nervous system.

Clinical Discussion

Dr. Delp: Thank you. I would like to emphasize several items which were gathered from the history of the physician who first saw the patient, and there are some points that need clarification. It has been assumed that the patient was a perfectly well man who had a convulsive seizure while eating breakfast on the morning of June 24. He saw his physician shortly afterward. A spinal tap was done at that time, and normal protein was found. A Wassermann test was negative, and there was a cell count of 4 in a colorless, clear fluid with no evidence of increased pressure. It was discovered at that time that the patient had a family history of diabetes. He had had a nephrectomy, although this was not emphasized for reasons that are not entirely clear to me.

After his seizure the patient continued to work, but he often complained of headaches and pressure sensations in the left temporal region. He had speech difficulty and some clumsiness of his arms, apparently worse on his left side than on his right. He had frequent sensations of giddiness, mild syncope and some vertigo. On August 3 he had a severe headache which lasted all day, and toward evening of that day he fell to the floor and had jerking movements of his arms and one of his legs. He had a fever of 102 degrees. The following morning while at breakfast he had another major convulsive seizure. At that time he had a fever of 104 degrees. He was taken to his local hospital, and subsequently he was transferred here. Now, Mr. Sheafor, how do you explain why this apparently well man had a sudden seizure on June 24?

Mr. Sheafor: I believe that his seizure was the onset of viral encephalitis.

Dr. Delp: Mr. Settle?

Mr. Settle: I agree with Mr. Sheafor, but there may have been an irritable focus which was set off by the presence of encephalitis.

Dr. Delp: Mr. Stucky?

Mr. Stucky: One of the first signs of viral encephalitis is a major convulsion occurring in an apparently well man who gets up the next day and goes back to work at his regular job.

Mrs. Siegel: Was the convulsion the onset of his disease?

Dr. Delp: Yes, it was. The point I am trying to emphasize, however, is that the patient got up the next morning and went to work, apparently feeling well. What do you believe could have caused him to have that convulsion at breakfast, Mr. Settle?

Mr. Settle: In my opinion the time that the convulsion occurred is insignificant. It could have occurred at night, and no one would have known anything about it.

Dr. Delp: The second convulsion also occurred at breakfast. Will you explain the negative spinal fluid

examination on the day after his first seizure, Mr. Sheafor?

Mr. Sheafor: The spinal fluid examination showed clear fluid, 4 cells, normal pressure, negative serology, normal protein of 35 mg. per cent all of which presents the typical picture of viral encephalitis.

Dr. Delp: About seven weeks after his admission here the findings were essentially the same. The third spinal fluid showed 101 white cells, 231 red cells, and spinal fluid protein of 191 mg. per cent. Is that still typical, Mr. Sheafor?

Mr. Sheafor: Changes in spinal fluid protein and cells may be due to spinal taps.

Dr. Delp: Mr. Todd?

Mr. Todd: I believe that changes in spinal fluid protein are associated with the disease.

Dr. Delp: Mr. Wright?

Mr. Wright: There was probably increased permeability of choroid plexus toward the end that would account for the increase in protein.

Dr. Delp: Do you believe that the connection between the onset, the initial signs, and the termination of the illness is consistent?

Mr. Wright: It is not inconsistent with a number of viral encephalitis that have been reported in the literature.

Dr. Delp: What is your second diagnosis, Mr. Settle?

Mr. Settle: I could not rule out the various chronic meningitis that were mentioned.

Dr. Delp: What are the signs of chronic meningitis?

Mr. Settle: There is increased protein in the spinal fluid, and the sugar is normal.

Dr. Delp: The protein was 35 mg. per cent. Is that increased?

Mr. Settle: No, but there may have been other signs which could have been consistent with meningeal irritation?

Dr. Delp: Did he have any signs of meningeal irritation?

Mr. Settle: He complained of some stiffness of his neck.

Dr. Delp: Mr. Sheafor?

Mr. Sheafor: I cannot definitely exclude a diffuse infiltrative neoplastic disease such as a gliomatosis.

Dr. Delp: What is your next best diagnosis, Mr. Stucky?

Mr. Stucky: Glioblastoma multiforme.

Dr. Delp: Mr. Todd?

Mr. Todd: Glioblastoma multiforme.

Dr. Delp: Mrs. Siegel?

Mrs. Siegel: His course and spinal fluid findings were not incompatible with a brain abscess; too, there were no localizing signs.

Dr. Delp: Since the patient did not have a stiff neck, and there was no elevation of protein, what

other signs of meningitis should he have shown?

Mrs. Siegel: There was no positive Kernig's sign and no meningismus, but his course was compatible with meningitis.

Dr. Delp: Do you believe that he had two illnesses?

Mrs. Siegel: No, I do not.

Dr. Delp: Mr. Wright, do you believe that the various anticonvulsants and antibiotics which he received could have had some bearing on his illness?

Mr. Wright: No.

Dr. Delp: Mrs. Siegel?

Mrs. Siegel: They would have decreased the tendency toward convulsions.

Dr. Delp: Mr. Settle, in your opinion did the patient die of encephalitis? Was that the immediate cause of death?

Mr. Settle: Yes, I believe he did die of encephalitis. No part of the central nervous system is exempt from being affected by encephalitis, and there could have been a diffuse involvement.

Dr. Delp: Mr. Sheafor?

Mr. Sheafor: I believe it was encephalitis.

Dr. Delp: Mrs. Siegel, do you believe he died of encephalitis or *with* encephalitis? What was the immediate cause of death?

Mrs. Siegel: I believe he died of hypothalamic failure.

Dr. Delp: How do you explain the patient's fever? Is it consistent with your diagnosis?

Mrs. Siegel: Yes, it is; I believe that this is a fairly flat fever course.

Dr. Delp: I would say that 104 degrees is a high fever.

Mrs. Siegel: It could be a simple fever, a hypothalamic fever.

Dr. Delp: What is your opinion of this virus, Mr. Wright?

Mr. Wright: Some recent literature was concerned with 38 cases of nuclear inclusion viral encephalitis in seven of which herpes simplex was isolated.

Dr. Delp: How many were 55 years of age, and how long did they live?

Mr. Wright: All were adult patients; some lived for three and one-half months, some lived for seven weeks, but most of them lived only for two or three days.

Dr. Delp: Thank you. We will now have the pathologist's report.

Pathological Report

Dr. J. K. Frenkel (pathologist): The brain was moderately edematous and weighed 1470 gm. A pressure cone was present on the right cerebellar tonsil. There was evidence of meningitis and perivascular cuffing as shown in Figure 3. There was also inflammation of the cortex, a loss of staining density and



Figure 3. Inflammation of meninges and necrosis of neurons in the cortex with edema, perivascular inflammation. H and E. 50X.

frank infarction. We see hyperemia and perivascular leukocytic infiltration, and numerous phagocytes accompany neuronal cells with intranuclear inclusions (Figure 4).

This is an example of encephalitis due to *Herpesvirus hominis* which more commonly produces recurrent attacks of fever blisters. The question arises as to whether this was the primary infection of our patient at 55 years of age or whether it was a recurrent infection, which for one reason or another extended into the central nervous system. There was no evidence of recent gingivostomatitis. Statistically speaking, most adults have antibodies. Because it has been shown in animals that herpes virus can remain latent and then be precipitated into encephalitis by anaphylactic shock, I believe that this patient's disease, too, could have been the result of latent herpes simplex infection. Some unknown insult or modifying influence resulted in extension of the virus infection into the brain, giving rise to many small foci which gradually increased in size. A review of the literature shows that the clinical course is commonly slow, usually from four to six weeks, although occasionally death occurs much more quickly.

A number of oligodendroglia appear in the white matter with intranuclear inclusion or chromatin disturbances (Figure 5). Some areas of gray matter show

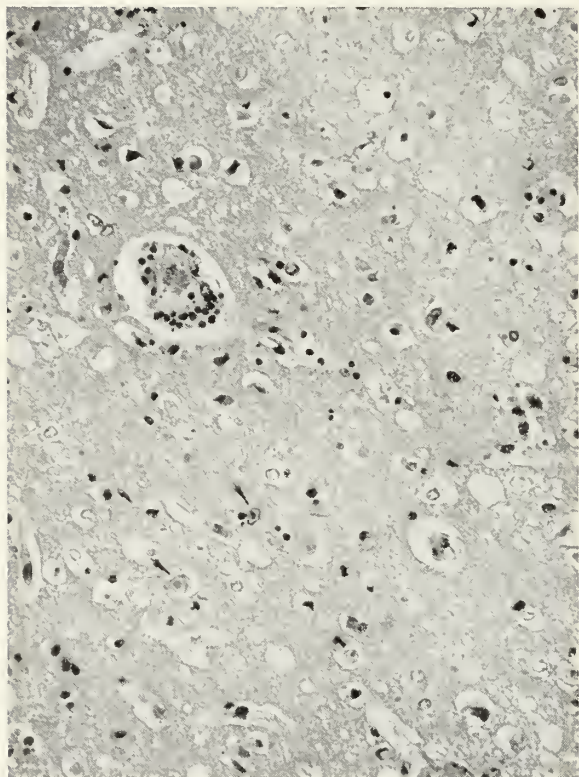


Figure 4. Necrosis of individual neurons, intranuclear inclusions, mainly in astrocytes, edema and perivascular inflammation. H and E. 200 \times .

numerous neurons and glial cells with inclusions (Figure 4). Cases have been described in which herpes virus has been isolated without any inclusions present. The intense necrosis depends on the occlusion of vessels, and in some areas the amount of debris gives rise to a marked phagocytic reaction. A number of glial cells show mitotic figures which, in my experience, is rare.

Most of the lesions were in the cortex, in the gray matter and subjacent white matter. The patient had signs referable to fifth nerve irritation and to other cranial nerve irritations. The nucleus pigmentosis pontis and the adjacent part of the fifth nerve motor nucleus showed marked inflammatory involvement.

Along the pons were small areas of glial nodules and neuronal degeneration in the nucleus of the vagus. Glial nodules with intranuclear inclusion were present in the reticular substance of the medulla, and perhaps had some bearing on the patient's somnolence.

The caudal medulla showed changes in the Nissl substance of cells, indicating without definite inclusion that these cells too were involved.

Part of the cerebellar folia were plainly infarcted. All of the small neurons were degenerated, and there were infarcts without any inflammation.

Thrombi having the appearance of fibrinoid material were fairly numerous in some areas of the brain

while not in others. In an area of the hypothalamus, occlusion of a small vessel was seen associated with a small area of infarction, and tentatively this type of thrombosis may have been the cause of the many cerebral infarcts.

There was aspiration pneumonia with patchy atelectasis. The patient was slightly dehydrated, and there was inspissation of mucus in the pancreas.

Through the efforts of Dr. Herbert A. Wenner, research professor of pediatrics, and Miss Marjorie Soergel, research assistant, Virus Research Section, this virus has been isolated and the identity of the virus proven by neutralization tests, using Keown anti-herpes HF serum. Employing monkey kidney cell cultures, the virus may produce focal lesions in solid sheets of cells. The virus enters the cells, multiplies and sometimes produces inclusions in the nucleus (Figures 6 and 7). The cells round up, detach from the glass, and subsequently die. The focal nature of lesions in the brain, in tissue cultures and in the skin, suggests that the virus travels from cell to adjacent cell. Tissue culture not only offers a way of identifying the virus but also permits the performance of studies which show that this virus spreads slowly even in the presence of antibody, perhaps explaining why the disease progressed so slowly in this patient. Unfortunately no serum specimen was available postmortem to test for the actual presence of such antibody.

If virus is deposited on the chorioallantoic membrane of the chick embryo many small necrotic foci result, so-called "pocks" which likewise provide a sig-

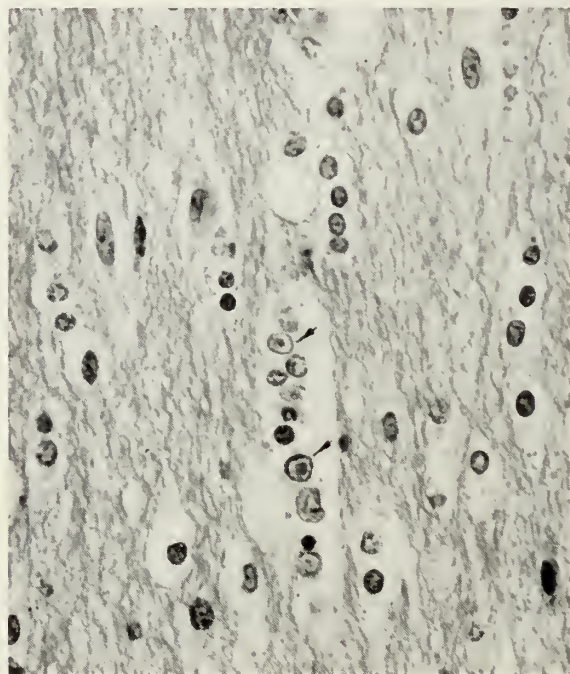


Figure 5. Intranuclear inclusions (arrow) in oligodendroglia of white matter. H and E. 500 \times .

nificant aid in identifying the virus. Mice can be infected with the virus by intracerebral inoculation. Intranuclear inclusions and focal areas of neuronal degeneration are seen.

We have seen the virus grow and where it grows. Now, how does it produce inclusions? Dr. Councilman Morgan and his colleagues⁴ with the aid of the electron microscope have made a study of this in

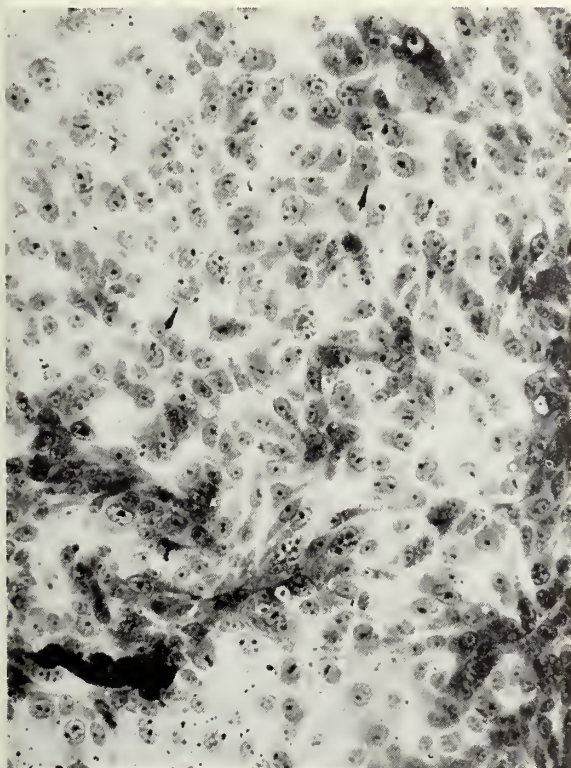


Figure 6. Intranuclear inclusions in monkey kidney cell culture. H and E. 200 \times .

detail, and all of the evidence points toward the fact that the virus is produced in the nucleus as a spherical body surrounded by a single membrane (Figures 8 and 9). Bits of nuclear membrane are pinched off as the virus exits (Figure 10), and the virus particles appear in the cytoplasm covered by two membranes (Figure 11). Virus infected cells can survive for several days, and for a while the nucleus secretes herpes virus. Many other viruses will kill the cells quickly. For example, mice infected with western equine encephalitis virus usually die within two or three days, whereas if infected with herpes they may survive for a week or sometimes longer.

What we recognize as a cell with an inclusion is a nucleus which is disintegrated. Sometimes a matrix is left with a few virus particles. The actual virus secretory activity of the nucleus does not produce an inclusion body recognizable by light microscopy. A regular inclusion body becomes apparent only when

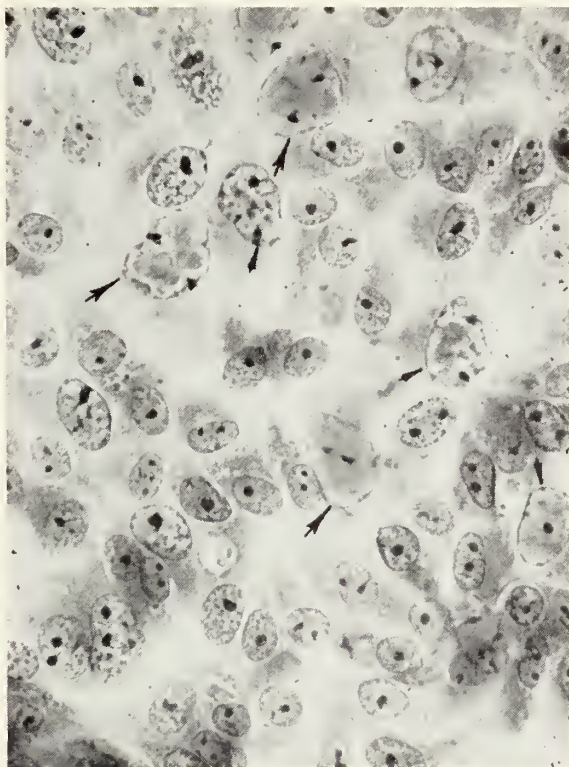


Figure 7. Intranuclear inclusions in monkey kidney cell culture. The smallest nuclei are of normal appearance; infected nuclei show margination of chromatin and the appearance of a homogenous central intranuclear inclusion (arrow). H and E. 500 \times .

the cell is more or less exhausted, dead or dying.

In regard to the prolonged course of the disease, the virus appears to enter into some of the neurons and oligodendroglial cells near the surface of the cortex, and the infection smoulders along presumably



Figure 8. Part of the nucleus of a human cell grown in tissue culture. The chromatin is marginated and an aggregate of small regular granules is seen near the top. $\times 10,000$. (From Morgan *et al.*, reference No. 4. Courtesy of Councilman Morgan, M.D. and The Rockefeller Institute Press.)

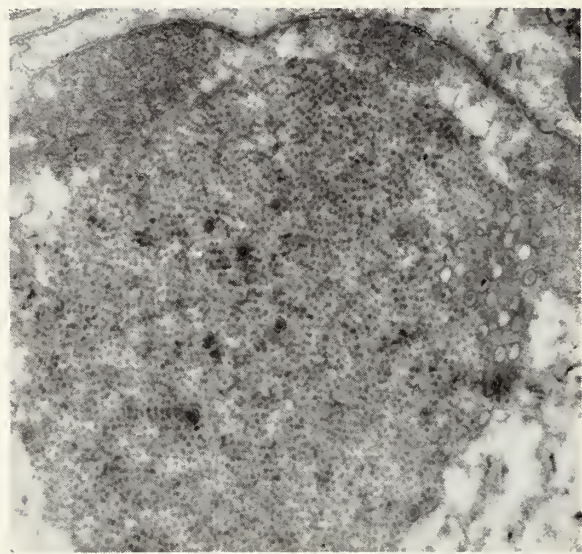


Figure 9. The granular aggregate in Figure 8 is sectioned at a slightly different level. The granules of developing herpes virus are nearly uniform in size and occasionally form short rows. Scattered among the granules are viral particles with an internal body and a single limiting membrane. $\times 40,000$. (From Morgan *et al.*, reference No. 4. Courtesy of Councilman Morgan, M.D. and The Rockefeller Institute Press.)

retarded by the presence of acquired immunity which, although inadequate in the central nervous system, apparently prevented infection of the mucous membranes or, at least, recurrent infection in our patient. The increase in cerebrospinal fluid pleocytosis can be explained by the increasing infarction.

I believe the patient died from the multiple infarcts as well as from the irritation produced along the brain and brain stem, the pons in particular, and then terminally had the complication of bronchopneumonia. Coliform bacteria and staphylococci were isolated from the blood and the pleural fluid. Surprisingly, however, none were isolated from the lung. No definite bacteria were found in the lung sections, and the polymorphonuclears were the only indication of infection.

Dr. Delp: Thank you, Dr. Frenkel. I was hoping that the students would say that the patient had bronchopneumonia. Dr. Youmans, may we have your comments, please?

Dr. Ronald A. Youmans (instructor in medicine): Our case is somewhat vague as presented on the protocol, and it was just as vague clinically. However, if a 55-year-old man were to come into my office complaining that he had had a seizure but that he otherwise felt well, and, furthermore, if he acted well and had a negative neurological examination and negative spinal fluid, I would be inclined to start him on anti-convulsants with the comment that "this seizure may be the only one you will ever have."

So far as anyone knows there is no adequate ex-

planation for these so-called idiopathic seizures which have their onset in middle age. Because of the lack of neurological findings these seizures are probably not significant. Most of them prove to be minor vascular accidents, and another seizure may never occur. It is important, however, that these patients are started on anti-convulsants, and they should be followed for at least three years to be certain that they remain neurologically negative. If neurologic signs of significance should develop one is obliged to do arteriograms and an air study and aggressively pursue a diagnosis of brain tumor.

When we saw the patient during the last eight days of his life it was obvious that he had encephalitis. A high fever with progressive somnolence made the diagnosis reasonably certain. The problem still remained, however, whether encephalitis was all that he had, or, considering his two-year history of clumsiness of his hands, whether there might be a meningioma

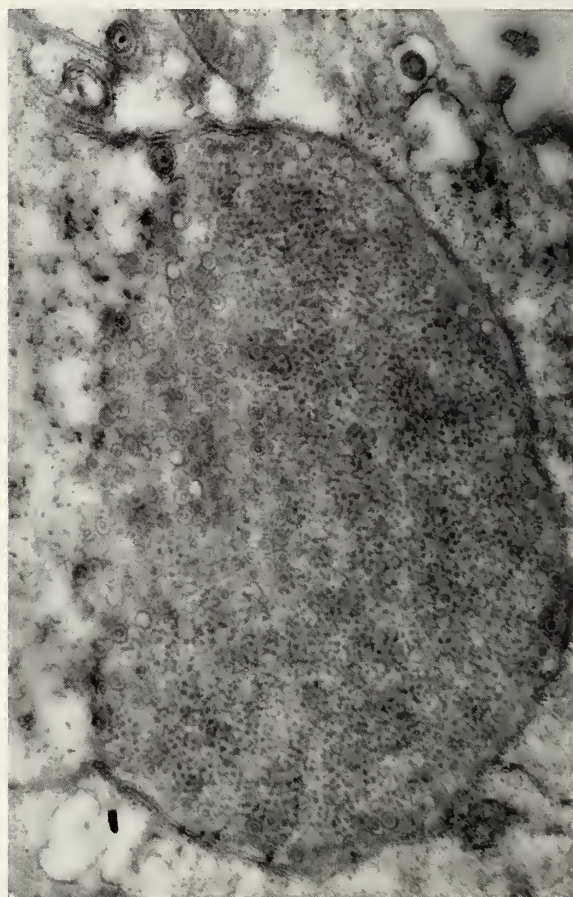


Figure 10. A collection of granules and viral particles in crystalline pattern are shown within a nuclear protrusion of the cell. A row of virus particles lies adjacent to the nuclear membrane which is reduplicated. At the top, two intranuclear particles possess triple membranes. $\times 44,000$. (From Morgan *et al.*, reference No. 4. Courtesy of Councilman Morgan, M.D. and The Rockefeller Institute Press.)

or, possibly, another tumor of six-months' duration. Although the encephalitis was there we still did arteriograms. Glioblastoma is the only tumor that characteristically manifests an intermittent fever of one-half to one degree. A sustained fever of 104 degrees is not compatible with the diagnosis of that tumor. I believe that herpes virus is present everywhere all of the time. Dr. Frenkel will probably agree with me that herpes virus is not easily cultured or easily isolated. It probably is not often isolated even when it is present. The patient may have had herpes virus for years. I suspect that most of us have it or have had it.

Apparently something else happened to the patient during the last two weeks of his life which was catastrophic and allowed the virus to become rampant.

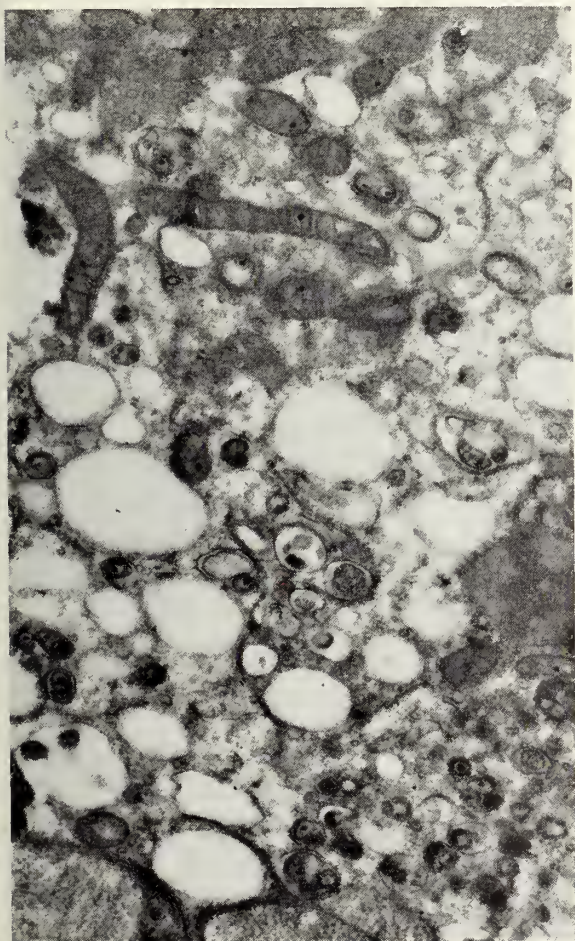


Figure 11. Cytoplasm of a human cell containing herpes virus particles the majority of which lie within vacuoles. The process of viral extrusion from the nucleus can be seen at the lower border where there is reduplication of the nuclear membrane forming sacs enclosing virus particles with two membranes. Formation of these sacs result in liberation of virus without disruption of either nuclear or cytoplasmic membranes. (From Morgan *et al.*, reference No. 4. Courtesy of Councilman Morgan, M.D. and The Rockefeller Institute Press.)

It may have been a co-infection with a second virus, a change in his allergic state, a depletion of his immunity system or trauma—one can postulate indefinitely. Perhaps there was a change in his general allergy state, or he may have developed hay fever at that time of the year. Many things can cause a virus to become rampant. Interesting studies have been made in connection with ECHO and Coxsackie infections in which neither virus alone is markedly virulent, but co-infection with the two presents a dramatic picture not resembling either of the single infections alone. There is no reason, however, to believe that herpes is anything except a single virus infection.

Dr. Delp: Thank you. May we have your comments, Dr. Wenner?

Dr. Wenner: It is not always true that herpes simplex is a chronic disease, particularly when it involves the central nervous system. The cases that I have seen were acute, and the patients died within a week or ten days. Dr. Youmans stated that herpes simplex floats around quite generally and that everyone has it. I believe that is an assumption. It is true, however, that herpes simplex can be isolated from the mouths of many individuals. There is the concept, not a proven one, that herpes simplex is latent in the tissues of human beings, and that it could flare up at almost any time. That concept is based entirely upon clinical evidence which is good, but, in my opinion, it is only a concept. I am somewhat reluctant to believe that masked viruses which perhaps lie in the central nervous system might suddenly flare up. I believe that most of the viruses that reach the central nervous system come from elsewhere by inroads, either vascular or neuronal, rather than being touched off by any other insult to the brain tissue that might exist.

As I heard the history of the patient I suspected that he had two illnesses. In the first place, how could he have had convulsions and still feel perfectly well? Also, how could he have had yet another convulsion and still have a normal spinal fluid? I do not understand how he could have had all of these changes in his brain until his terminal event. I believe that his terminal event was acute encephalitis, but that it was a secondary feature.

Dr. Delp: Thank you. Dr. Williamson, perhaps you can enlighten us on what seems to be a lack of proper correlation between the inception of the patient's illness and the termination.

Dr. William P. Williamson (neurosurgeon): It was the surgeon's obligation to rule out brain abscess or brain tumor. Localization of the lesion could not be well placed in any single area. It seemed that the patient either had widespread brain stem disease, as exemplified by the initial appearance of bulbar speech and profound stupor, or bilateral cerebral disease as evidenced by convulsions alternating from one side to the other. It was not possible anatomically to put his disease in one small area to fit brain abscess or

brain tumor. Secondly, as has been pointed out, the spinal fluid findings were more compatible with viral infection. If the patient had had a brain abscess which had suddenly ruptured into a ventricle to account for his sudden, apoplectic, violent illness, the spinal fluid should have been full of polymorphonuclears, and the spinal fluid should have been low. It was our opinion that he did have a viral encephalitis, but we were puzzled by the convulsion he had had two months previously, and we were worried about a possible smoldering tumor or brain abscess that might have suddenly flared up. For that reason we concurred in doing the arteriograms in order to have the assurance that he was not a surgical problem. I still cannot believe that the patient had encephalitis and that he worked at his regular job for two months with it.

Dr. Frenkel: I would like to add one more thing. I believe that this virus infection started in the brain of an immune host. Immunity potential there is basically lower than in the extraneural viscera. In experimental animals one can sometimes watch chronic encephalitis progress slowly for many months. Having studied chronic toxoplasmosis this has become a familiar concept to me. It appears consistent with this patient's history that lesions slowly spread in the brain and that increasing signs resulted from the cumulative damage.

One clinically important precipitating influence has not been mentioned. In patients with conjunctival and corneal herpes virus the use of eye drops containing adrenal corticoids has resulted in the spread of the infection with involvement of the entire orbit. So we know at least of one factor that can cause herpes virus to flare up in man. Relapse in rabbits where anaphylactic shock gave rise to herpes encephalitis following

a latent virus infection is, I believe, well documented by Good and Campbell.²

Dr. Delp: Thank you, Dr. Frenkel. In the case today we have seen a brilliant demonstration of a patient who had, at the time of death, herpes virus in the brain. I do not believe that has been demonstrated here previously. I am somewhat skeptical, however, as to whether the patient had herpes virus involving his brain for two months; but then we should be skeptical about many things in medicine.

Pathological Anatomical Diagnosis

Meningoencephalitis, subacute, with virus resembling *Herpesvirus hominis* (Herpes simplex), isolated in tissue culture.

Edema of the brain.

Pressure cone on the right cerebellar tonsil.

Bronchopneumonia, advanced, involving both left lobes and the lower lobe of the right lung.

References

1. Florman, A. L. and Trader, F. W.: A study of pathogenicity and antigenicity of four strains of Herpes simplex. *J. Immunol.* 55:263, 1947.
2. Good, R. A. and Campbell, B.: The precipitation of latent Herpes simplex encephalitis by anaphylactic shock. *Proc. Soc. Exp. Biol. Med.* 68:82, 1948.
3. Haymaker, W., Smith, M. G., Van Bogart, L., de Chenar, C.: Pathology of viral diseases in man characterized by nuclear inclusion with emphasis on Herpes simplex and subacute inclusion encephalitis, in Fields, W. S. and Blattner, R. J. *Viral Encephalitis*, C. C. Thomas, Springfield, 1958, p. 95-205.
4. Morgan, C., Rose, H. M., Holden, M. and Jones, E. P.: Electron microscopic observations on the development of Herpes simplex virus. *J. Exp. Med.* 110:643, 1959.
5. Pearson, H. E. and Butt, E.: Hemorrhagic herpetic encephalitis. *Am. J. Clin. Path.* 26:1174, 1956.
6. Wolf, A.: "The pathology of some viral encephalitides," in Kidd, J. G. (ed.). *The Pathogenesis and Pathology of Viral Diseases*. N. Y. Acad. Med. Sympos. No. 3.

Notice

The committee in charge of the scientific exhibits for the annual meeting of the Kansas Medical Society to be held in Wichita May 1-4, 1961, has made arrangements for the use of good exhibit space immediately adjacent to the meeting area. The Kansas Medical Society has made available \$200.00 to be used in cash prizes.

Because of the Kansas Centennial Exposition which will be in Wichita, there will probably be record breaking attendance at the meeting.

Exhibits in the scientific area will be limited to those of a scientific nature. Each member of the Kansas Medical Society is invited to prepare an exhibit. Other interested physicians may also present scientific exhibits, however, if space is a problem members will be given the first priority.

A form on which space may be requested will be mailed to each member of the Kansas Medical Society. Physicians, who are not members, who wish to reserve space should address inquiries to:

Charles M. White, M.D.
3244 East Douglas
Wichita, Kansas

The President's Message

DEAR DOCTOR:

As we inspect this month's JOURNAL, we of the Kansas Medical Society and residents of Kansas can be justly proud of the gradual but steady development of the University of Kansas Medical School. From its meager beginning, through the many years with its many ups and downs from which much was learned, a Medical Center has developed, that is recognized throughout the United States as one of the fine medical schools.

The University of Kansas Medical School was first to recognize the need for doing something to encourage newly graduated medical men to go to rural communities where medical help was so greatly needed. This was done through Preceptorships which have been a great help in alleviating the scarcity of doctors in many communities.

This program is well on its way. The Dean and staff of the Medical School were desirous of giving Kansas physicians an opportunity of taking advantage of Postgraduate work at the Medical School, as well as in circuit courses. This was done and the Postgraduate School has gone ahead in leaps and bounds not only serving the Kansas doctors, but have expanded until doctors throughout the United States are taking advantage of the Postgraduate School.

May I say that all of this development has taken place as a result of a fine and almost superhuman cooperative effort of the staff of the Medical School and, of course, no little credit goes to the Board of Regents, the Kansas Legislature and to the physicians of this state in making all of these things possible.



Yours very truly,

A stylized, handwritten signature in dark ink, appearing to read "S. Regelman".

President

Editorial Comment

The JOURNAL is proud to present the 15th Edition of the Annual University of Kansas Issue. This year, again, Dr. Jesse D. Rising of the University of Kansas Medical Center directed the large task of the selection and assembling of material. His success was so outstanding that only a portion of the papers appear in this issue. Others will be published subsequently. We think the 15th University of Kansas School of Medicine Issue is the most significant of this series.

This also marks the first occasion of this event under the direction of a new dean, Dr. C. Arden Miller. The JOURNAL expresses its gratitude to the dean, to Doctor Rising and to each of the faculty contributing articles. We welcome this opportunity for a tangible expression of the close cooperation existing between the medical profession of this state and the University and look forward to continuation of this relationship into the future.

Orville R. Clark, M.D.—Editor



Editorial COMMENT

The Immunization Act of 1961

Before the Kansas Senate, at the time this editorial is written, there is a bill entitled the Immunization Act, Senate Bill 119, submitted by the Committee on Public Health. Its subtitle states succinctly that this is "An act relating to schools, providing for certification of immunization of school children of certain diseases, and providing certain exemption from such requirements."

The act provides that any pupil, entering school for the first time in this state shall, prior to admission, be required to present to appropriate school authorities certification from a licensed physician that he has received immunization against poliomyelitis, smallpox, diphtheria, pertussis, and tetanus, by proper means.

Exemptions to this act are broad enough to satisfy any personal or religious objection, but require the exceptions to be made a matter of record.

This legislation is long overdue. It has been endorsed by the School Health Committee of the Kansas Medical Society and by the Kansas State Teacher's Association. We feel this is worthy legislation and in the great tradition of Kansas leadership in public health. It deserves the support of each member of the Kansas Medical Society.

A.M.A. Membership

Many physicians on starting their practice immediately join their local Medical Society without realizing that they are thus becoming a part of ORGANIZED MEDICINE which is patterned more or less like the American Government.

In joining the local or county medical society the physician automatically becomes a member of the Kansas Medical Society. The purpose of the K.M.S. Constitution begins with this:

"The purpose of this society shall be to federate and bring into one compact organization the entire medical profession of the State of Kansas AND TO UNITE WITH SIMILAR SOCIETIES OF OTHER STATES TO FORM THE AMERICAN MEDICAL ASSOCIATION," etc.

Annually the House of Delegates of the Kansas organization elects and sends delegates to the House of Delegates of the A.M.A., thereby recognizing the fact that the local members not only are eligible to membership but are members in the A.M.A. whose By-Laws provide membership as follows:

"Active membership shall be limited to those members of constituent associations who hold the degree of Doctor of Medicine or Bachelor of Medicine and are entitled to exercise the rights of active membership in their constituent associations, including the right to vote and hold office, etc."

You will note the similarity of the plan to the American Government. A citizen of a county is likewise a citizen of Kansas, and likewise an American Citizen. He is therefore subject to the rules and laws set down by the respective governing bodies elected by the people.

Every active, paid up member of any of the component societies of the Kansas Medical Society is therefore a potential member of the A.M.A. and as such is responsible for any dues voted by a majority of the Delegates. Dues are not set by the officers or any of the active sections of the organization. Please note the similarity of organization procedure since the Senators and Representatives of the Congress, elected by the people have found it necessary to levy an Income Tax upon the people. Frankly, we don't like it but we pay it. By remaining a member of your local society you are therefore liable for the Dues of the A.M.A.

Many years ago annual subscription to the *Journal*

of the A.M.A. was the only financial request. Later Fellowship sections were established, and those desiring that, paid in additional sums or work. Still later a more or less voluntary request for regular contributions was asked of members and still later, regular annual dues were established, which still includes *Journal* subscription. We have recently been informed that the dues will be raised.

A. W. FEGTLY, M.D. *Wichita*

AMENDMENT NO. 1

BY-LAWS CHAPTER V, SECTION 3, Page 14
Amended to read:

Section 3. Each component society having made its annual report and paid its assessments as provided in this Constitution and By-Laws shall elect ONE DELEGATE (1) and ONE ALTERNATE (1) to the House of Delegates for each TWENTY (20) MEMBERS and major fraction thereof, PROVIDED, that each component single county society shall be entitled to at least one delegate and one alternate, and Provided further that each COMPONENT MULTI-COUNTY Society shall be entitled to elect one delegate and one alternate, PLUS one delegate and one alternate for each TEN (10) members and major fraction thereof on the membership roll. It shall be the duty of the secretary of each component society to send a list of the delegates and alternates to the Executive Secretary of this Society at least thirty days prior to each session.

AMENDMENT NO. 2

BY-LAWS CHAPTER VI, Line 13, Page 17
Amend by

Strike out the word "and" before the words "delegate elect" and insert a comma (,) and the words "and an alternate delegate" and further in Line 15 and 16 strike out the words "and alternate delegate to the American Medical Association."

AMENDMENT NO. 3

BY-LAWS CHAPTER VIII, SECTION 15, Page 23
Amend to read:

Section 15. The EXECUTIVE SECRETARY shall notify each component society of each Councilor District at least three months in advance of the annual session at which a new councilor term begins for that district. A meeting of the component societies of a district may be held or a poll taken prior to the annual session to determine a Councilor to be recommended for the new term, and the Councilor shall be elected by a caucus of the delegates present from the several component

societies of the district as required by the Constitution (Article IX, Section 3). The results of the caucus shall be reported to the House of Delegates along with the names of the newly elected officers.

AMENDMENT NO. 4

CONSTITUTION ARTICLE IV, SECTION 2,
Page 5 Amended to read:

Section 2. The officers of this Society shall be a president, a president-elect, a first vice-president, a second vice-president, a secretary, a treasurer, a Speaker of the House, and a vice speaker of the House. All officers shall be elected by the House of Delegates of this Society for terms of office as are herein provided.

AMENDMENT NO. 5

CONSTITUTION ARTICLE VII, SECTION 1,
Page 6 Amended to read:

Section 1. The House of Delegates shall be the primary legislative and governing body of this Society, and shall consist of the duly elected delegates presided over by a Speaker of the House or a Vice Speaker. Other officers, councilors, Chairman of the Editorial Board and Past Presidents of this Society who are not elected delegates shall be EX-OFFICIO members without vote.

AMENDMENT NO. 6

CONSTITUTION ARTICLE IX, SECTION 1,
Line 2, Page 7 Amend as follows:

After the word "treasurer" add the words "speaker and vice-speaker of the House of Delegates."

AMENDMENT NO. 7

BY-LAWS CHAPTER V, SECTION 8, No. 2,
Page 14 Amend as follows:

Delete the word "President" and insert the words "Speaker of the House" also after No. 5 in the agenda, insert a new No. 6 "Address of the Speaker."

AMENDMENT NO. 8

BY-LAWS CHAPTER V, SECTION 9, No. 2,
Page 15 Amend as follows:

Delete the word "President" and insert the word "speaker" also in No. 3 after the word "Treasurer," insert the words "Speaker and Vice-speaker," also in No. 9 amend to read "Installation of new president and speaker."

AMENDMENT NO. 9

BY-LAWS CHAPTER VII, SECTION 1, Line 9,
Page 17 Amend as follows:

Delete the words "House of Delegates and the"

AMENDMENT NO. 10

BY-LAWS CHAPTER VII, SECTION 3, Line 3,
Page 18 Amend as follows:

Delete the words "the House of Delegates"

AMENDMENT NO. 11

BY-LAWS CHAPTER VII, New SECTION 7
(re-number No. 8), Page 19 Insert

Section 7. The Speaker of the House, elected annually, shall preside at all meetings of the House of Delegates, appoint all reference committees and refer proper resolutions or amendments or subjects to each, and shall perform such duties as custom and parliamentary procedure may require. He shall have the right to vote only in case of a tie. He shall be ex-officio a member of the Council without vote.

The Vice-Speaker shall be prepared to assume the duties of Speaker during his absence or at his request, shall assist the Speaker in the performance of his duties, act in capacity of Sergeant at arms. He shall have the right of vote only when in the capacity of Speaker and only in case of tie vote. In the event of death, resignation or disability of the Speaker he shall automatically succeed to that position for the unexpired term. He shall be an ex-officio member of the Council without vote.

In case of death, resignation or removal of both Speaker and Vice-Speaker, the Council shall appoint either or both for the unexpired term.

AMENDMENT NO. 12

BY LAWS CHAPTER VI, SECTION 1, Line 10,
Page 17 Amend as follows:

After the word "treasurer" insert the words "Speaker and Vice-Speaker of the House of Delegates" making lines 9 to 12 read: "each elective office consisting of one or more candidates for the offices of president-elect, first vice-president, secretary, treasurer, speaker and vice-speaker of the House of Delegates, delegate-elect and alternate delegate to the American Medical Association, and three or more candidates for the office of second vice-president."

AMENDMENT NO. 13

BY-LAWS CHAPTER XI, SECTION 3, b & c,
Page 27 Amend as follows:

b. Line 2, Delete "president" and insert "Speaker of House of Delegates."

c. Line 2, Delete "president" and insert "Speaker of House of Delegates."

AMENDMENT NO. 14 (recommended by Dr. Thorpe)

BY-LAWS CHAPTER VI, SECTION 1, Pages 16 & 17 Amend as follows:

Amend down to the last word in line 6, to read as follows: Section 1. "A nominating committee of five shall be elected by ballot from the elected delegates at the first meeting of the House of Delegates of each annual session. One member so elected shall be appointed as chairman of the committee by the incoming president of the Society."

AMENDMENT NO. 15

BY-LAWS CHAPTER V, SECTION 1, Last line page 13 and first line page 14 shall be amended to read:

"Notice of such meeting shall be mailed to each component society AT LEAST FIFTEEN (15) DAYS in advance of the date selected and shall state time, place, and purpose of the meeting."

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

David H. Davis, M.D.
Larned State Hospital
Larned, Kansas

Joseph H. Depoe, M.D.
Box 248
Douglass, Kansas

Jose L. Ibarra, M.D.
Box 500
Osawatomic, Kansas

James J. Jambor, M.D.
806 Second Avenue
Dodge City, Kansas

Emmett R. Johnson, M.D.
Larned State Hospital
Larned, Kansas

Robert R. Kitchen, M.D.
Kansas Treatment Center
for Children
Third & Oakley
Topeka, Kansas

David A. Lasley, M.D.
416 South Santa Fe
Salina, Kansas

John D. MacCarthy, M.D.
325 Maine Street
Lawrence, Kansas

Aubrey S. McGee, M.D.
Santa Fe Hospital
Topeka, Kansas

W. Lynn McKim, M.D.
616 Niles
Kinsley, Kansas

Eugene M. Malone, M.D.
Hertzler Clinic
Halstead, Kansas

Donald H. Morrison, M.D.
2 Hollylane
Paola, Kansas

John E. Morton, M.D.
Hertzler Clinic
Halstead, Kansas

Gerald K. Palmer, M.D.
St. John's Hospital
Salina, Kansas

Robert D. Parman, M.D.
306 Medical Arts Building
Topeka, Kansas

Jaime Polit, M.D.
Box 500
Osawatomic, Kansas

William E. St. Clair, M.D.
Hartig Clinic
Downs, Kansas

Dale B. Snow, M.D.
1200 Fremont
Manhattan, Kansas

William V. Trekell, M.D.
806 Second Avenue
Dodge City, Kansas

Clarence N. Waters, M.D.
519 United Building
Salina, Kansas

Harry E. Watts, M.D.
107 B West 13th
Hays, Kansas

William N. Wilks, M.D.
Larned State Hospital
Larned, Kansas

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011 ex. 297

Recent Acquisitions

Allergy

Scott, M. J. Hypnosis in skin and allergic diseases. Thomas. 1960.

Anesthesia

Adriani, J. A. The pharmacology of anesthetic drugs. Thomas. 1960.

Asepsis

Perkins, J. J. Principles and methods of sterilization. Thomas. 1960.

Cancer

Leukemia cutis. Thomas. 1960.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

Dermatology

Goldsmith, N. You and your skin. Thomas. 1960.

Endocrinology

Pitt-Rivers, R. The chemistry of thyroid diseases. Thomas. 1960.

Gastroenterology

Kleckner, M. S. Cirrhosis of the liver. Thomas. 1960.

Rider, J. A. Disturbances in gastrointestinal motility. Thomas. 1960.

Spencer, R. P. The intestinal tract. Thomas. 1960.

Geriatrics

Burgess, E. W. Aging in western societies. U. of Chicago Press. 1960.

Hemorrhagic Diseases

Ratnoff, O. D. Bleeding syndromes. Thomas. 1960.

Mental Health

Bower, E. M. Early identification of emotionally handicapped children. Thomas. 1960.

Medical Education

Medical Exam Pub. Co. Medical examination review book. Basic Science. 1960.

Nutrition

Bender, A. E. Dictionary of nutrition and food technology. Academic Press. 1960.

Ophthalmology

Haessler, F. H. Eye signs in general disease. Thomas. 1960.

Orthopedics

DePalma, A. F. Clinical orthopaedics. Lippincott. 1960.

Mandarino, M. Chemical osteosynthesis in orthopedic surgery. Thomas. 1960.

Radiation & Radiology

Cronkite, E. P. Radiation injury in man. Thomas. 1960.

Overman, R. T. Radioisotope technique. McGraw-Hill. 1960.

Rheumatic & Arthritic Diseases

Walrad, R. Misrepresentation of arthritis drugs and devices in U. S. Arthritis Foundation. 1960.

Surgery

Moore, F. D. Metabolic care of the surgical patient. Saunders. 1959.

Urology

Flocks, R. H. Radiation therapy of early prostatic cancer. Thomas. 1960.

IN A QUANDARY trying to explain medical care costs in the light of today's over-all rising prices? If so, you'll be interested in the pages from the American Medical Association's new booklet "The ? Cost of Medical Care." The 16-page cartoon pamphlet is being distributed through the Kansas Medical Society. For your copy, just write to the JOURNAL.



New Service Statements

The new Blue Shield Service Statements introduced late in 1960 on tab cards are now in use on a statewide basis. There has been excellent acceptance of the new claim forms, and we are eager that the new procedures become a smooth operation as soon as possible. Some of the most frequent questions Blue Shield has received from physicians and medical assistants are discussed below and perhaps will be helpful to you.

Q. When should the new forms be used?

A. The new forms may be used immediately even if you have a supply of the old forms. However, the old Service Statements may still be used until your supply is exhausted, or they may be returned to the Topeka office, or discarded.

Q. Can more than one service be reported on the new forms?

A. Yes. Any or all professional services for the same patient may be reported on one card form.

Q. There is no specific place on the form for "accident date" and some of my Service Statements are being returned. Can you clarify this situation?

A. Although the form does not provide a specific section for the accident date, *this information is needed* for services involving accident-x-rays or emergency first aid. The date of the accident should be placed on the Service Statement near the "diagnosis" or the "description" of services.

Q. Was it intended that the new forms be used

for intensive medical care or individual consideration cases?

A. In general, the answer is no. Certain needed information for Review Committee cases is not routinely asked for on the new forms. It is much better to use the special forms (34-15 and 34-16) for reporting Intensive Medical Care or Individual Consideration cases.

Q. The new forms have a specific place for procedure code. What is this and is it necessary?

A. The "procedure code" refers to the code number in the Participating Physician's Manual that immediately precedes the description of service. For example, the procedure code for an appendectomy is 3261.

Although it is very helpful to the Blue Shield personnel processing the Service Statement, it is not necessary to report the procedure code. The reporting of services by the procedure code may avoid an incorrect interpretation of services.

Q. What additional information reported from the physician's office would be helpful?

A. The new forms were pre-coded with the physician's name and Blue Shield payment number. In some cases it is necessary for the Blue Shield office to write the physician. Therefore, it would be helpful if the person filling out the Service Statement would type in the physician's address.

Any additional questions concerning the Service Statements should be directed to the Physician Relations Department at the Blue Shield Office at 1133 Topeka Boulevard in Topeka.

MAKE YOUR RESERVATIONS NOW

For the 102nd Annual Convention
Wichita, Kansas May 1-3, 1961

Some Facilities Available:

Allis Hotel
200 South Broadway

Broadview Hotel
101 North Waco

Eaton Hotel
523 East Douglas

Kersting Hotel
320 North Market

Lassen Hotel
First & Market

Lincoln Hotel
333 North Market

McClellan Hotel
229 East William

Renfro Hotel
612 East Douglas

Shirkmere Hotel
256 North Topeka

Municipal Forum
221 South Water

Auto Motel
1230 North Broadway

Casa Siesta Motel
4449 South Broadway

English Village Motor Lodge
6727 East Kellogg

Holiday Inn Hotel
7411 East Kellogg

Kellogg Motel
7307 East Kellogg

Leon Motel
4459 South Broadway

Sands Motel
8401 West Hyway 54

Schimmel Inn
8401 East Kellogg

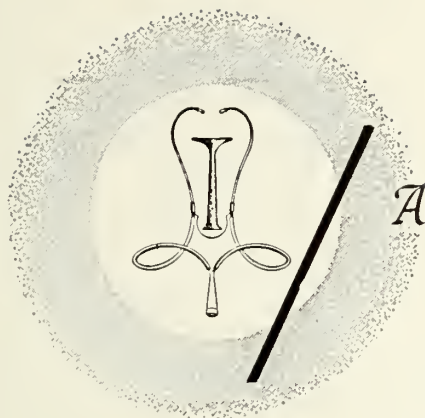
Starlight Motor Lodge
6345 E. Kellogg

Town & Country Lodge
4702 West Kellogg

Town Manor Motel
1112 North Broadway

Uptown Motel
1421 North Broadway

Wheat State Motel
8410 East Kellogg



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The Gill Memorial Eye, Ear and Throat Hospital announces the program of the Thirty-Fourth Annual Spring Congress in Ophthalmology, Otolaryngology and allied specialties. The meeting will be held April 3 through April 8, 1961, at the Patrick Henry Hotel, Roanoke, Virginia.

Interested registrants will please write directly to E. G. Gill, M.D., Box 1789, Roanoke, Virginia.

The next scheduled examinations of the American Board of Obstetrics and Gynecology (Part II), oral and clinical for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois by the entire Board from April 8 through 15, 1961. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I Examinations will be notified of their eligibility for the Part II Examinations as soon as possible.

All candidates, eligible for the Part II Examinations, who have applied for the first time in 1960, will be required to submit a duplicate list of the hospital admissions as contained in their application.

The deadline date for the receipt of new and reopened applications for the 1962 examinations is August 1, 1961. Candidates are urged to submit their applications as soon as possible before that time to Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

The Annual Midwestern Section Meeting of the Association for Research in Ophthalmology will be held in Wahl Hall Auditorium at the University of Kansas Medical Center on April 29 and 30. Admission is free and any Doctor of Medicine is invited and encouraged to attend. Inquiries regarding the meeting should be directed to Larry L. Calkins, M.D., Department of Ophthalmology, K.U.M.C., Kansas City 12, Kansas.

The Fifth Post-Graduate Course on Fractures and Other Trauma sponsored by the Chicago Committee on Trauma of the American College of Surgeons will be held April 19 through 22, 1961, at the John B. Murphy Memorial Auditorium, Chicago, Illinois.

Interested registrants should address all inquiries to Dr. John J. Fahey, who is Chairman of the Committee on the Post-Graduate Course on Fractures and Other Trauma, 1791 West Howard Street, Chicago 26, Illinois.

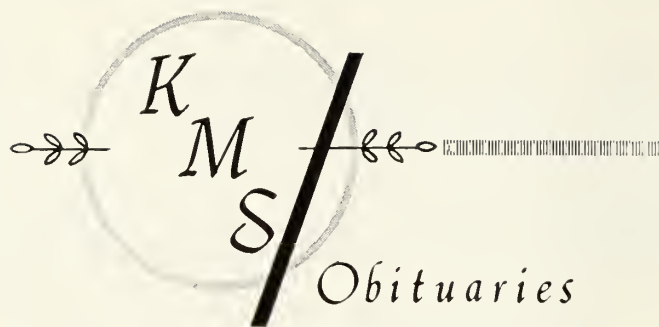
Plan to attend the Thirteenth Annual Convention of the International Academy of Proctology at the Drake Hotel, Chicago, Illinois, April 8 through 13, 1961. A seminar on practical technics for office and hospital is being planned. There will be special emphasis on anal and rectal panel presentations, and on newer treatment methods.

Eminent speakers from all parts of the country and abroad will present interesting papers and motion picture demonstrations of their personal techniques.

A Symposium on Pediatric Surgery will be held at the New York University Medical Center, New York City, May 4 through 6, 1961, under the direction of Donald A. Davis, M.D., professor of clinical surgery.

The purpose of this symposium is to present the latest methods and techniques of both diagnosis and surgical management of surgical conditions in the newborn and older children. The program has been planned to attract not only the surgeon but also the pediatrician and the general practitioner. The presentation will be in panel form, with authorities in the field of pediatric surgery taking part.

Information and applications are available by writing to: Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16, N. Y.



ELDON S. MILLER, M.D.

Dr. Eldon S. Miller, 57, leading Kansas City specialist in internal medicine, died in his office on January 14.

He was born in Smithville, Missouri, on September 24, 1903 and was a graduate of the University of Kansas Medical School. Dr. Miller moved to Kansas City, Kansas, in 1929 and had lived in that area since then.

He served his internship at St. Louis City Hospital and took postgraduate training in internal medicine with an emphasis on diabetes.

He was a member of the Welborn Community Church, a past president of the Wyandotte County Medical Society and the Diabetes Association of Greater Kansas City. He was also a member of the American Medical Association.

He is survived by his widow, Mrs. Desma L. Miller, three sons, two brothers, and two sisters.

CHARLES C. HAWKE, M.D.

Dr. Charles C. Hawke, 75, Winfield physician and surgeon, died January 13 in Pasadena, California, after suffering a heart attack earlier in the day. He had gone to Pasadena for a short visit with his sister, Miss Margaret Hawke.

Dr. Hawke was born August 4, 1885, in North Dakota. He was graduated from the University of Minnesota School of Medicine in 1913. After serving as an intern in the Denver City and County Hospital, he went to Winfield in 1914 to practice.

He was a charter member of the Winfield American Legion, a member of the Grace Episcopal Church and had served several terms as city commissioner and mayor.

He is survived by two daughters, four grandchildren, one great grandchild, and one sister.

JOHN D. HILLIARD, M.D.

Dr. John D. Hilliard, 43, of Medicine Lodge, died at the University of Kansas Medical Center on January 22, following a short illness.

He was born on June 28, 1917, in Freeport, Kansas. He was graduated from the Kansas University School

of Medicine in 1942. He served in the U. S. Army from 1944 to 1946 and began his practice in Medicine Lodge in 1951.

Dr. Hilliard was a member of the Tri-County Medical Association, the American Medical Association, was president of National Cerebral Palsy of Kansas, and a Fellow of American Academy of General Practice.

Survivors include his wife, Jane; four daughters, Nancy, Mary Jo, Patricia and Barbara of the home; and one brother. He was preceded in death by a son in 1960.

ROSCOE T. NICHOLS, M.D.

Dr. R. T. Nichols, 80, of Hiawatha, died at Fitzsimons General Hospital at Denver on January 22.

He was born in Iowa in 1881 and was graduated from Northwestern University Medical School in 1902.

He was a member of the staff of the Hiawatha Community Hospital, president of the Hiawatha Masonic Temple board, president of Hiawatha United Funds and was serving as Brown County health officer. He was a past member of the Kansas State Board of Health and many other civic and community groups.

Dr. Nichols is survived by two sons, Col. H. D. Nichols, Manhattan, Col. R. T. Nichols, Jr., Houston, Tex.; and one daughter, Miss Alice Nichols, New York City.

JAMES A. SIMPSON, M.D.

Dr. J. A. Simpson, 79, Salina physician and obstetrician, died on January 18 at St. John's Hospital following a lengthy illness.

He was born September 24, 1881, in Modoc, Illinois. He was a member of the Roman Catholic Church, a member of the Knights of Columbus and was a charter member of the Salina Kiwanis Club.

Dr. Simpson moved to Salina in 1905 after he was graduated from the American Medical College at St. Louis. He celebrated his 50th year in medicine in May, 1955, and retired in 1958 to devote his time to his hobbies.

Survivors are his widow, Gertrude, two sons, one daughter, a brother, two sisters, 17 grandchildren, and one great-grandchild.



Personalities—IN KANSAS MEDICINE

In the January, 1961, meeting of the Republic County Medical Society, the following officers were elected: **Herbert D. Doubek, M.D.**, Belleville, President and **Perry Hunsley, M.D.**, Belleville, Secretary-Treasurer.

Dr. Zane R. Boyd, Wichita, was one of 46 physicians who recently attended a two-day postgraduate course in obstetrics and gynecology at the University of Nebraska College of Medicine, Omaha.

Drs. Jack Tiller and **Larry E. Vin Zant**, Wichita, were among those attending the Sectional meeting of the American College of Surgeons in Mexico City, Mexico, January 23-26.

The Northwest Kansas Medical Society had its postgraduate course at Colby on February 1. Doctors attending were **Dr. E. F. Steichen**, Leonora; **Dr. H. S. Bennie**, Almena; **Dr. Walter Furst**, Norton; and **Drs. Robert Long**, **F. D. Kennedy**, **A. E. Cooper** all of Norton.

Dr. Henry T. Gray attended the American Academy of Dermatology and Syphilology in Chicago, December 3-8. He presented a paper and showed slides on "Gingivitis and Other Dermatoses with Pregnancy."

Dr. C. T. Hagan, Wichita, who began his internship at St. Francis Hospital 17 years ago, was elected recently to the presidency of the hospital's medical staff.

J. Gordon Claypool, M.D., Howard, has been notified that he has been made a Fellow of the

American College of Physicians. His fellowship will be conferred at the next annual meeting of the American College of Physicians in May of this year at Miami, Florida.

Dr. B. M. Matassar attended the Ninth Postgraduate Course in "Diabetes and Basic Metabolic Problems" (American Diabetes Association) at Louisiana State University School of Medicine at New Orleans, January 18-20.

The third in a series of six postgraduate symposiums was presented in Concordia by the University of Kansas School of Medicine faculty on January 31.

Doctors appearing on the program were: **Dr. Antoni M. Diehl**, Associate Professor of Pediatrics, who spoke on "Congestive Heart Failure in Children"; **Dr. Marvin Dunn**, Associate in Medicine, "Physiological Factors in Peripheral Vascular Disease" and "Pseudoinfarction Syndromes"; **Dr. Creighton Hardin**, Associate Professor of Surgery, "Surgical (Renal Artery) Treatment of Hypertension" and "Management of Acute and Chronic Deep Thrombophlebitis" and **Dr. Bernard Klionsky**, Assistant Professor of Pathology.

Drs. H. O. Anderson, **Ward A. McClanahan**, and **H. O. Marsh**, Wichita, were among those attending the American Academy of Orthopedic Surgeons Meeting in Miami Beach, January 8-13.

Dr. Robert E. Pfuetze, Topeka, was installed as president of the medical staff of St. Francis Hospital on January 23. Other officers installed are: **Dr. W. L. Beller**, Topeka, vice president, and **Dr. G. W. Nice**, Topeka, secretary.

The Kansas Medical Society—1960-1961

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| Shawnee..... | R. Dale Dickson, Topeka..... | V. E. Watts, Smith Center |
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Angina Pectoris

A Clinical Note in the Use of Myordil® (Win 5494)*

HUGHES W. DAY, M.D., F.C.C.P., Kansas City, Kansas

THE DESIRED AIM of the cardiologist is to maintain his coronary patient free of pain while living a useful and enjoyable life. To accomplish this, nitroglycerin, in any of its various forms, and pentaerythritol tetranitrate have proven to be the physician's best armamentarium in the treatment of angina pectoris both in the pre and postinfarction period.

A new compound which chemically is 3-dimethylamine-1,1,2-tris-(4-methoxyphenyl)-1-propene hydrochloride, developed by the Sterling-Winthrop Institute,¹ has been made available for the care of the cardiac patient with arrhythmias or coronary symptoms. The generic name of this new drug is amotripene.

Certain pharmacologic facts have already been reported.^{1, 2, 3, 4} Myordil is a long acting coronary vasodilator being more potent than sodium nitrite. It produces an increased coronary circulation without materially lowering blood pressure. In addition, it enhances systolic discharge with a resultant increase in myocardial oxygenation. The drug also has anti-fibrillatory activity and is effective against premature ventricular beats.

Significant side effects are reportedly uncommon,¹ although among those which may be encountered are bradycardia on occasion, or nausea. These effects are easily reversed if the dosage is adjusted downward.

Chief of Cardiology, Bethany Hospital, Kansas City, Kansas.

* Supplied through the courtesy of the Medical Research Department, Winthrop Laboratories, N. Y. To be made commercially available.

Presented at the Staff Meeting, Providence Hospital, Kansas City, Kansas, March, 1960.

A dose of 300 mg. per day is more likely to induce untoward reactions. In the elderly patient, urinary retention may occur, and it has been observed that if the tablet is held on the tongue, there may be a temporary anesthetic effect. Myordil can stimulate the growth of the uterus in immature female rats. Clinical work also shows that in doses of 400 mg. daily over a period of time, slight uterine bleeding may occur in the female, with gynecomastia occasionally developing in the adult male.

Over a period of 16 months, we have had the opportunity to employ the drug in 40 patients. Of this group, we have classified five as complete failures. Two of the group stopped the drug of their own accord because of nausea. One patient classified as a failure while maintained on Myordil, continues to have moderately severe angina. All other known forms of therapy have also failed to keep this patient symptom free. The other two cases were considered failures since death occurred while under therapy. One of these died four months after an extensive infarction although angina was not a problem as his death occurred from heart failure with pulmonary infarction. The other death occurred during the sixth week of therapy following an anterolateral wall infarct. Angina was not prevented in this patient. No postmortem was permitted and we cannot say that death was due to ventricular fibrillation while on Myordil.

Of our remaining 35 patients, all are definitely improved. Fifty per cent are free of anginal pain and
(Continued on page 160)

A Layman Looks at the Practise of Medicine

ROBERT I. PEELE

IN ORDER TO EVALUATE the remarks made on any controversial subject it is as important to know the personal attitude of the speaker as it is to know what he says. Does he have an axe to grind; is he only using the podium to air his personal prejudices or are his opinions based on an impersonal interest? In this connection I submit that my relations with physicians have been invariably friendly. I have had occasion to use their services rarely, and on the one time that I was faced with a near fatal emergency I was amazed with the attention I received.

I have chosen my subject because a man's health is always of primary interest to him, so therefore anyone who is concerned with the maintenance of that health is necessarily of equal interest.

Undoubtedly this essay will contain many errors. To those who may wish to point them out I make two observations: (1) I deliberately refrained from doing any research on my subject, for if I was an authority on it I would no longer be a layman; (2) the customer is always right. Even when he is wrong he is right. If the public no longer has confidence in the medical profession it is unimportant whether or not the lack of confidence is justified. What is important is the public's opinion. The people make the rules.

It is an interesting fact that those callings which do business with things enjoy a great prestige in the eyes of the public while those callings which do business with people are marked with a singular lack of trust by this same public. Tool makers, architects, engineers . . . all conjure up an image of strong, two fisted honesty. Salesmen, lawyers, politicians . . . while they may command respect as individuals are all categorically suspect.

There are several exceptions to the rule, but the two most notable exceptions are the minister and the doctor. One doesn't have to look very far to find the reason. While ministers and doctors do business with people, the people don't think of them in that light. Ministers are concerned with the soul. Doctors are concerned with the body. Both of these things have always been consigned to the realm of the unknown as far as men were concerned. The minister and the doctor dealt with matters of mystery. As a result their prestige was always on a par with the temporal leader, himself. The high priest in the temple, and the witch doctor in the tribe; each made his own rules. In certain respects they were even exalted above the temporal leaders.

Today the doctor has fallen from his lofty place in society. No longer is he a person whose opinions are never questioned. He is looked upon now as just a man in a certain line of business. In this connection I called upon a sick friend of mine not too long ago. He informed that he had "fired his doctor." I asked him why and he replied; "I hired him to do a job and he didn't do it, so I let him go."

I have no doubt that people have been changing doctors since time immemorial but I have never heard such terms used when a change is made. Newspaper men get fired. Elevator operators get fired. Ordinary people get fired. But one doesn't fire a doctor. To me a statement like this was something new.

This essay is devoted to a study of why all of this has come about.

Purely for the purposes of this discussion I am going to divide the practise of medicine into three periods. The first period was taken up with the discovery of disease, the second with the cure, and the third with the prevention of disease. Actually this sequence is inaccurate. Prevention of disease has been practised for thousands of years and even today new diseases and new cures are being discovered, but in a very broad sense the sequence is historically correct.

During the first two periods—the period of discovery of disease and the period of discovery of cure—it was unnecessary for the doctor to let his patient in on his secrets. The physician examined the ailing man, asked him a few questions and then prescribed a remedy. In a primitive society, he may have burned some joss and muttered incantations. Later he ground up the entrails of a bat, mixed it with powdered gold, and stuffed it down the patient's throat. More recently the doctor scribbled some hieroglyphics on a pad and in due course of time a bottle of pink medicine arrived, some of which was to be taken every three hours. In the course of a couple of weeks one of two things happened. The patient died or the patient got well. If it was the former it was the will of God. If it was the latter the doctor was some kind of a genius. One way or the other, the sick man never knew what happened. It was all a mystery to him.

As late as my own youth the public's knowledge of the intricacies of illness was comparatively limited. A man had stomach trouble or heart trouble or lung trouble. The fact that there could be twenty different things wrong with any of those organs was unknown to him. Naturally, people were familiar with the

specific diseases (typhoid fever, diphtheria, smallpox and the like) but all they knew about even these was that they were caused by some kind of a germ.

As a result the doctor continued to dwell in his ivory tower performing his benevolent necromancies in a manner that baffled mankind.

But when preventive medicine came on the scene things took a different turn. The thing is that if you are trying to prevent something you have to tell the subject a little about that thing you are trying to prevent in order to secure his cooperation, because, after all, he is the one who must do the preventing. When I was a child my mother abjured me never to eat dill pickles and milk at the same time. Why? Because they would give me a stomach ache. Why? Because the acid in the pickles curdled the milk. What does curdle mean? It means that the acid in the pickles turned the milk into lumps. Then what? The lumps would stop up the lower intestine and it would hurt something fierce.

Just to test out this theory I have eaten pickles and milk many times since, and if my lower intestine got stopped up I was unaware of the fact. But the fact is that my mother, in order to prevent a stomach ache, had to give me an elementary education in the mysteries of my digestive tract. That she was incorrect in a few particulars is beside the point.

As I have already mentioned, preventive medicine has been practised for thousands of years, but it has reached the apogee of development during the present generation. Preventive medicine was no conscious movement on the part of the medical profession. Nobody stood up and made a motion to go into it. As far as I know it was brought about by lay writers.

Newspapers have been running health columns for as long as I can remember, but because of their brevity they were never too illuminating. It was during the middle twenties that a writer by the name of Paul DeKruif brought out several books and articles on medical discoveries. They were well received. A little later Menninger published "The Human Mind" and, subsequently, "The Human Body." The popularity of such books brought on a flood of medical information written for the laymen. Today it is almost impossible to pick up a home or women's magazine that does not carry at least one article on health. And the *Reader's Digest* has a fixed policy of an article on the subject every month. Insurance firms, such as the Metropolitan Life Insurance Company, are regularly running a series of full page advertisements in various magazines setting forth the cause, prevention or control of various ailments.

As a result of all this the public has received a liberal education in the working of its body and mind. If anyone in this room were asked to define "suture," "occlusion," "trauma," or "basic metabo-

lism" he could do it without the slightest difficulty. The average man has an excellent knowledge of the human organism together with its ailments, and a fair knowledge of the treatment therefor.

And so the physician's secrets have at last been revealed. When I was a boy I was taken to see Thurston. At that time I believed his tricks to have been accomplished by sheer magic. Thurston was supernaturally endowed. Since that time I have learned the principles of illusion. I no longer look at a magician as a genie from outer space. He is only a mere man working at a trade.

And so it is with the public's attitude toward the doctor. It has learned what he does. It has learned that his treatments and cures are not magic, but merely attained by the judicious use of the proper chemicals, or, in some cases, by nature itself without the doctor's aid.

Is this preventive medicine good or bad from the standpoint of the doctor? I believe that it is bad in certain respects. Several years ago I attended several meetings of a theosophical society. In case you don't know, Theosophists believe in reincarnation. The speaker fascinated me with his explanations of how mere men are reincarnated in 700 years while geniuses require an absence of 1,100 years before they return to earth. I was a regular attendant at these meetings for several months until one day I ran into the lecturer in a supermarket buying groceries. Something went out of me when I saw what he was doing. He was eating, for the present, just like any mere man.

Physicians will continue to practise, but with the knowledge that has come to the public the prestige that they commanded as medicine men has gone forever.

If preventive medicine or—to be more exact—if the knowledge which is necessary for the practise of preventive medicine has affected the prestige of the doctor, it has done even more harm to the public itself.

On more than one occasion I have heard it said that doctors are more frightened than other people when they undergo an operation because they know all of the things that might go wrong. Whether or not this is true I am not prepared to say, but it certainly is true that this knowledge which the public has of disease has made neurotics out of an awful lot of people. It used to be when a kid cut his finger he either sucked on it or went in the house and had some iodine applied. Today I know more than one mother who always calls the doctor on such provocation. Tetanus, blood poisoning—all sorts of horrible afflictions—are conjured up at the sight of the smallest injury.

Actually preventive medicine has gone from the sublime to the ridiculous. A year or so ago the de-

partment of health took it upon itself to predict an Asian Flu epidemic for the following winter. I am quite sure that the health department took a great deal of satisfaction in its prognostication when the epidemic arrived exactly on schedule. Ostensibly the reason for this prediction was to warn the public so it could protect itself with flu shots. Many people did—at a cost of some millions of dollars. But I will wager that for every person that was saved from the illness by a shot there were a dozen who took to their beds thinking they had the flu, but didn't. Add a few malingerers who also took advantage of the situation to catch up on a little rest and you have the loss of some millions of man hours to say nothing of the worry that was caused. And all of this in the face of the fact that the authorities themselves said that the epidemic would be mild. One cannot help but ask himself what the health people are trying to do.

Under the guise of protecting the public the dogooders' attacks on our fears are never ending. We are told that cigarettes are causing lung cancer. We are told that we are eating ourselves to death. We are continually cautioned about our nerves. Granting that all of these things are true is the pound of prevention worth the ounce of cure?

One of the more insidious aspects of preventive medicine is the development of the various foundations devoted to the track down and cure of disease. For a long time the field was limited to the rather innocent efforts of the Tuberculosis Society, which contented itself with selling stamps at Christmas time. Later it was joined by the infantile paralysis people with their March of Dimes. Today in addition to all of this, we have foundations for heart, cancer, multiple sclerosis and God knows how many more.

The real significance of all these organizations didn't dawn on people until the Salk vaccine threatened to put the polio people out of business and the latter were caught stealing some other organization's disease. Now it seems that there simply aren't enough good diseases to go around, but the drives for money from these high class rackets continue to flourish. Is the medical profession to blame for all of this? Not at all. But because all of these involve medicine directly or indirectly the doctor is affected.

The second cause of criticism of the medical profession is the cost of illness.

When I was a boy a friend of mine fell out of an apple tree and broke his arm. My grandmother took the lad to the doctor. The latter set the arm and put it in splints. My grandmother was great for paying off her obligations immediately. I remember the amount she took out of her purse. It was one dollar.

Just a few years ago my own son fell out of a tree and broke his arm. We took him to the hospital and into an aseptic looking room. To set the arm required the services of the doctor, a nurse, a roent-

genologist, and an anesthetist. The arm was x-rayed from two angles before it was set. It was set under a fluoroscope and then it was x-rayed again after it was set. After the cast was taken off it was x-rayed again. Total cost—\$160.00. The doctor's share of this expense was reasonable, but the fact remained that this particular medical bill amounted to \$160.00. I suffered no anguish because I had health insurance, but at the time I reflected on the problems of people who were faced with such a bill and had no health insurance.

In a way I was fortunate because this particular affliction was covered by insurance. There are many illnesses that are not covered or are covered only briefly. The expense must be intolerable in some cases.

We are speedily getting to the point where the person in average circumstances just can't afford to be sick.

Several weeks ago I was taken down with a heavy cold. Since average people like myself have pretty good knowledge of disease—due to our liberal education in the subject—I know that there is no cure for the common cold. Shots, yes. But colds are caused by a dozen different strains of virus and how are you going to know if the shot you are taking is the right one for the particular virus that is raising hell? So I did nothing for my cold but suffer. Shortly after my recovery I ran into a friend who had the same affliction. He looked terrible and he confessed that he felt worse. I asked him what he was doing for his cold. He said that he had been to the doctor and the latter had prescribed a small box of large pills which cost \$8.00. He counted the pills in the box and he figured they cost about thirty cents a piece. Counting the doctor's fee and the pills I imagine that he spent a minimum of fifteen dollars. I asked whether the pills were doing him any good. He forgot that he had told me how terrible he felt. He only remembered the 30¢ pills he was taking, so he said, "Oh, they're doing me a lot of good." I am too tactful to enter into a debate with a sick man. I felt terrible and he felt terrible, only I didn't feel as terrible as he did because I was fifteen dollars ahead of the game.

Now in this expensive situation the doctor represents only one item in the total cost and that item is not unreasonable, but because the doctor's fee is the focal item in any medical bill the doctor gets the blame.

It is entirely understandable that since a man's health is of the greatest importance to him he wants only the best. When this man buys a suit or any other piece of merchandise he has the alternative of several different qualities at several different prices. He chooses the one that he can afford to buy. I recommend to the medical profession that they look into the feasibility of some sort of variable price structure for treatment. Thus, one could have the \$200 ap-

pendicitis operation complete with private operating room, nurses, bright lights and anesthetic, or if one couldn't pay that price he could have the \$25 job performed with a carving knife and no anesthetic, in a soundproof room. Sounds silly, but there might be a thought there.

The third cause of criticism of the medical profession is the increasing impersonality of the doctor. Early in the New Deal when the moulders of our future were busy changing just about everything, there was considerable agitation in favor of socialized medicine. In one sense the movement never even got off the ground, but the American Medical Association was considerably exercised about the whole thing and spent millions of dollars fighting it. I remember well the basic tenet of their public advertising campaign, and that was that if socialized medicine came to pass the highly personal doctor-patient relationship would be lost forever.

Well, we still do not have socialized medicine, but the personal relationship between doctor and patient has largely departed. The loss did not come because the newer crop of doctors are frigid souls or because they developed a new code of procedure which left the patient out in the cold, but because of a development which is typical of modern progress—and that is specialization.

Actually, it was not the old-fashioned family doctor who was responsible for the friendly relationship but rather it was the climate in which he worked. In the old days the doctor tended to all kinds of illnesses and diseases. He was with the family in moments of gladness and the hours of travail. He was with them at their births, during their illnesses, and usually at their deaths. Because there were relatively few hospitals and most ailments were treated in the home he knew the way the family lived and, inevitably, he also was acquainted with a few skeletons who hung around the closets. In such an environment it was only logical that a very close relationship should develop. Today with the oncome of specialization and with the other phases of medical treatment and attention that have come along with it such relationships are becoming increasingly impossible. My mother goes to one doctor for her stomach, another for her eyes, and a couple more for various and sundry ailments to which she occasionally falls prey. I have a friend in Topeka who counted up the doctors that attended her family during the course of one year and she was appalled to find that there were twelve. Several years ago I had my appendix removed and I was intrigued with the fact that the face of the doctor I saw when I came out of the ether was not the one I saw when I was going in. I never did figure out that one.

The obvious justification for specialization in any calling is that there is so much to know that any one

person could not possibly be acquainted with more than one or two phases of the necessary knowledge within the course of a lifetime. On the surface this seems logical. But as a layman I believe that there is a fallacy here when it applies to the medical profession.

It seems to me that there are too many doctors today who specialize in treating diseases and too few who spend their time curing people. As I have already mentioned, specialization seems to be one of the penalties of progress. The trouble with specialization, however, is that one becomes an expert in all of the aspects of a single tree, but he is so close to it that he can't see the woods. Sometime ago our toilet developed an insidious affliction which I refer to here as a leakage of the lower bowel. It ran constantly to the intense satisfaction of the water company and the consternation of my family when guests were present. I tried fixing it but I am no good at fixing anything. Finally I called the plumber. He made four trips—and did strange and wonderful things. At the end of all this the toilet was still not fixed. In spite of that he sent me a bill—a very handsome bill. When I protested loudly he justified his charge on the basis that he had made four trips to my home. When I reminded him time and again in the course of the conversation that he hadn't fixed the toilet he made no effort to deny it; he merely reiterated that he had made four trips and the bill he had sent me was for those trips. The fact that he had failed to achieve the end to which I had employed him seemed not to have made the slightest difference.

My car ran poorly. I took it to a repair shop. I told the man that the engine was rough and requested that it be fixed. He examined the car and told me that I needed a complete tune-up, new plugs and new coils. He tuned the car up, put in new plugs and coils. The car ran no better than previously. When I took it back to him and refused to pay he was very indignant. He told me that he had given me a tune-up, and put in new plugs and new coils just as he had promised. When I reminded him that I had brought my car in to have its operation improved, and that that was what I was paying for he just couldn't see the point.

A couple of years ago a relative of mine, afflicted with cancer was taken to Barnes Hospital in St. Louis for an operation. In case you haven't heard of it, Barnes Hospital is a huge affair that is a cross between a Ford assembly plant and the Grand Central station. It is about as warm and friendly as a tin can at the North Pole. It is the last word—almost—in medical procedures.

We had seen the doctor who was to perform the operation just once for a period of about fifteen minutes. He was well groomed, courteous and absolutely impersonal.

The operation required a considerable length of time during which we waited. Finally the doctor reappeared. Someone asked him if the operation had been a success. He replied that it had.

"Then the patient will be as good as new again?" I said.

The doctor raised his eyebrows slightly. "Oh, no," he replied, "He will be an invalid for the rest of his life and require constant attention."

I have oversimplified this situation, but the basic facts are there. I don't know what the doctor thought about the task that he had performed, but if I had been in his position I would have considered that several hours of work had been wasted, I had removed a tumor, but I had done nothing to further the ends of my real career . . . and that was to cure people.

We talk about wonderful progress, and we have the statistics to prove it. People are living longer than ever before, which can only mean that many of the things that used to kill us are being conquered. We are informed that never in history have we been such a healthy people. But I remind you that these are only the statistics. From what I have been able to see people are sick just about as much as ever. In fact, they are sick more than ever because they know about more diseases to get sick with. Our hospitals are crowded. All of which adds up to one thing. The medical profession has been marvelously successful in curing diseases. It has made no progress at all in curing people.

I believe that doctors have ignored one of the basic tenets of medicine and that is, that the mind and the body within themselves possess the most powerful healing properties ever known. I refer not only to the natural defenses of the body but to the command post of the mind. It is common knowledge that if the morale of the patient is high he has accomplished a major step on the road to recovery.

Sometimes the power of will alone is sufficient. Witness the old formula of Doctor Coué, "Day by day in every way I am getting better and better." Most of the time, however, the mind needs a prop—a faith in something outside of it. Thus the Catholics have their shrines where miracles of healing are performed. And cures are unquestionably effected because the supplicants have faith in God. The Christian Scientist resists disease on the principle that God denies it. It is faith albeit the most difficult faith of all. Most people, however, no matter how much they may believe in the powers of the Lord, still place their faith in the doctor for the mine run of ailments.

In the average American family there used to be rules and regulations and certain rituals attending the business of getting sick. The rules were relatively simple. Fathers did not get sick. On the rare occa-

sions when the old man took to his bed with many moans and groans it ranked as a major disaster. The children were shooed out of the house and enjoined not to make any noise. It was one of the rare occasions when they obeyed. Mother put aside all other duties and engagements in order to take care of father, and father required plenty of taking care of. The entire house was placed on an emergency basis until Pop got back on his feet again. There was a reason for all of this. The father produced the income for the family. When he got sick the income stopped or at least was jeopardized. Small wonder it was that the entire family worried.

Mothers were permitted to get sick as long as they stayed on their feet. For them to take to their collective beds would have put the rest of the family to no end of inconvenience because then there would have been no one to do the cooking and house-keeping. There was one thing a woman could do to get to bed but the step was so drastic that only sheer desperation would have induced the move, and that was to become an invalid. We had an invalid in our neighborhood. Expressions of sympathy were always accompanied by a slight raise of the eyebrows. Social pressures were simply too great to allow the average woman to become an invalid.

Children were not only permitted to get sick; they were expected to get sick. There were a whole line of remedies in the medicine chest exclusively for children's illnesses. In my day there was a definite ritual about illness. You went to bed at night feeling a little groggy. When you awoke the next morning you didn't feel too bad until you tried to get out of bed. Then you felt rotten. In spite of that you tried to dress. Contrary to popular opinion most kids love school and the things that go with it, so you tried to make it. But by the time you had got your underwear on you knew you were battling fate.

With some sort of intuition your mother came in and asked you how you felt. Then she felt your forehead and made her preliminary diagnosis. Having done that she ordered you back in bed and informed the old man that you were on the shelf for the day. By this time you were feeling downright terrible. Then Pop left for work. As I remember it father never participated in minor illnesses. He only participated in major consultations.

To fully appreciate this you have to know that there was nothing more drab and gloomy than a February morning in St. Louis forty years ago. It is gloomy on a cloudy winter morning anywhere, but at that time the gloom in St. Louis was thickened into a murky mixture of smog made up of equal parts of soft coal smoke and dirty snow. The entire bedroom was in a half light and the climate was not exactly cheerful for a dying boy.

Out in the kitchen you could hear sounds. You knew exactly what was going on. There were a few steps to the bathroom and the sound of the medicine cabinet opening. Then steps back to the kitchen and another cabinet opening. Then the sound of a faucet running. Then you could hear the tinkle of a spoon stirring in a glass. And then a moment of silence.

I once attended a hanging about the same time of year at the same time of morning in the same town. The moment of silence after the spoon stopped tinkling in the glass produced exactly the same horrified reaction in me that I felt during that moment of silence before the trip door was sprung.

Presently my mother reappeared carrying a glass of orange juice in one hand and a huge glass of epsom salts in the other. This epsom salts was absolutely repulsive but it never once occurred to me to refuse it. With my generation it was a way of life. The trick in drinking epsom salts was to swallow it all in one gulp while holding your nose. It was a good trick if you could do it. I never quite made it, so I would have to come up for air and that is when the evil taste got me. Drinking the last dregs of the glass was always the toughest.

It's a funny thing the impressions that a child carries with him thru life. I happened to belong to the epsom salts school. All my friends belonged to the same school. The tougher more illiterate boys around school—that is, in my opinion they were tough and illiterate—belonged to the castor oil school. To me it was definitely an "other side of the tracks" drink. And even to this day when someone tells me that he used to take castor oil, I think of him as not being raised quite a gentleman.

After the salts have had a chance to do their work, then mother makes a further examination to determine whether there has been any improvement. If there hasn't, she would announce that she is going to call the doctor. So she goes to the phone and after getting hold of the doctor, describes the symptoms. There is some discussion and finally she hangs up to remark that the doctor will arrive in about an hour. The simple announcement brings a distinct improvement. Succor is on the way.

The ritual continues. Mother scurries around changing the sheets on the bed and tidying up the house. After this she produces a clean nightgown which you put on. (I never heard of anyone wearing pajamas until I was in my teens.) Improvement is more rapid now.

After an adequate amount of time has passed she peeks occasionally thru the lace curtains. There is a reason for this. Mother is not exactly peeking thru the curtains to watch for the doctor to arrive. She is peeking thru the curtains to see if other neighbor

women are peeking thru the curtains when the doctor arrives.

The arrival of a doctor in those days always added a certain prestige to the afflicted family. A doctor had to have a Buick, usually blue or black, spotlessly gleaming. A doctor who possessed only a Ford or a Chevy would have been out of business in a week. The affluence of the doctor's Buick was supposed to rub off on the family. And if the family was lucky—as it usually was if it resided among nosey neighbors—all of the latter could be counted on to peek out the window when the doctor showed up.

Presently the doctor appeared. He was faultlessly groomed, and smelled faintly of shaving lotion. He was obviously competent and prepared to cope with any affliction ever concocted by the devil.

The doctor placed himself in a chair which had been provided for him beside the bed. He asked a couple of questions. Then he took out his thermometer and put it in your mouth. Having done that he applied a stethoscope to your chest. The head of the scope was always pleasantly cool. He may or may not feel your pulse.

Then he took the thermometer out of your mouth and read it. Having done this he briskly terminated the examination. The stethoscope went back into the black bag which he shut with a snap. He took a prescription pad out of an inner pocket and scribbled some hieroglyphics on a page. This he gave to the mother. His instructions were always the same. "One spoonful every three hours and stay in bed for a few days."

Having done this the doctor moved to the door accompanied by mother. During these brief few minutes, she tried to worm some information out of him on the state of health of a few other patients that she happened to know. In this she was usually not too successful. After the door had closed mother returned. By this time recovery was almost complete. The bed felt pleasant, you felt good and you could look forward to the rest of the day in complete relaxation.

Looking back on it now I know the medicine did little good, the epsom salts absolutely no good, but the doctor himself had done a lot of good. People got well for no other reason than that they had had a visit from the doctor. Witness how things have changed today. In the first place with sick leave, health insurance and more lenient employers it is now permissible for fathers to get sick. If they were normally healthy how could they possibly avoid all of these diseases we now know about? It is also permissible for mothers to get sick. Automatic appliances now do most of the work so mothers have the time, and with all of the prepared foods available it is only necessary for pop to stop by the grocery

store to pick up a complete dinner which only needs a little heat applied to make it palatable. So there are no other factors present to prevent sickness.

But what happens when one takes to his bed? You call the doctor, and you get his secretary. She informs you that if you will appear at 3 o'clock at the doctor's office he will see you. You are dying, mind you, but you have to get out of bed. You could have both legs crushed underneath a truck but you would still have to make it some way, somehow, to the doctor's office.

The doctors may not realize this but in practically ordering patients to come to their office they have tipped their hand. I have no doubt that millions of people have figured that if the doctor thinks they are well enough to come to his office they are well enough to stay away entirely.

Anyway you make it to the office. You sit down in a modern chair which is not calculated to induce comfort. There are a lot of other sick people ahead of you so you prepare to make an afternoon of it. You pick up one of the doctor's latest magazines and open it to read of Peary's recent discovery of the North Pole. In the course of time, you are ushered into the doctor's inner office. I remember how doctor's offices used to look. They were pleasantly gloomy with a faint fragrance of medication in the air. There was always a rather worn oriental rug on the floor while the doctor sat in a swivel chair in front of a roll top desk. The doctor, himself, was a large benign looking individual whose stomach flowed comfortably into his lap. Across his stomach there was always a gold watch chain. How different today. Gone is the oriental rug, the swivel chair, and the roll top desk. The room is aseptically clean and there is a nurse present who is as stiff and starched as a body frozen in the ice for a week. All of these you can ignore. What you can't ignore are the machines. If you weren't sick before you went into this office you certainly are going to be sick after you get in. One look at all of those machines and you began to wonder whether you will make it until evening. I think that over every doctor's inner office there should be a sign, "abandon all hope, ye who enter here."

When you first come in the doctor is nowhere to be seen. While you are waiting you begin to diagnose your own case. Since you have a good working knowledge of disease you are now reminded of all the more horrible ailments. If you came in because of a slight pain in your arches (which you probably got from bracing yourself against a bar too long) you tell yourself that you could have Buerger's disease. This awful thought having occurred to you, you try to reconcile yourself to the inevitable. You tell yourself that better men than you have had Buerger's disease—like, for instance, the late King George and the present

C. F. Forester. And after all, Forester is still alive, isn't he?

Or the small discomfort in your stomach will surely be revealed under those machines as an incipient cancer. And you hope that it is only incipient.

Five minutes alone with yourself in a doctor's inner office is like crossing the River Styx in a leaky boat.

Presently the doctor comes in—always briskly. By this time his cheerful manner annoys you a little. People should be more diffident in the face of a dying patient.

He asks you a few questions, taps around, puts his finger under your scrotum and asks you to cough—and then gets sore when you cough in his face. He provides a bottle for you to urinate in. When the technician takes it away you only hope that she doesn't get it mixed up with the beer in the doctor's refrigerator. You keep worrying about the machines, but the machines are not used and this makes you kind of mad. After all you are paying for the works, aren't you? Finally the doctor hands down the decision. You have a low grade infection which while temporarily debilitating will not be fatal. He writes out a prescription which you know will cost at least five dollars. He tells you that he will call you if he finds anything in the urine. You start to caution him about the technician's disposition of the urine, but then you decide that that would be presuming, so you depart.

When you return once more to the cool open air you are mostly glad, but a little disappointed too. You are glad that he didn't find the horrible disease that you were sure you had, but you are a little sorry too in a kind of negative way. Here you have made the whole trip to the doctor's office for nothing. The doctor, himself, has done you no good. He has divested himself of his magic power.

At this point it might be well to pause and draw a few conclusions on what we have so far.

I have pointed out that the medical profession has been the subject of an intense scrutiny over the past few years. I have implied the profession has been subject to criticism. In order to determine the justice of these criticisms I have broken the situation down into its various facets and examined each of them. If you have been following me in this, I believe we will be persuaded that practically all of the criticism that has been directed at the profession has been on the score of things that are beyond the doctor's control or which the doctors have had nothing at all to do with.

If the medical profession has lost a measure of respect in the eyes of the public, it does not mean that it is subject to disrespect, but rather that with his new knowledge of disease and medical practise

the layman now sees the physician as the mere man that he is, and not as the magician he was supposed to be.

I have shown that the present high costs of being ill is not due to any astronomical increase in doctors' fees but rather to an increase in all of those appurtenances of the doctor—hospitals, medicine, and mechanical equipment.

If there is any criticism of the doctor that could be justified it is his tendency to specialize, and thus indulge in all of the evils that are attendant upon specialization. But in his specialization the doctor is only doing the same things that all other callings and businesses are doing. The jack of all trades that we admire so nostalgically is a thing of the past in all business.

Are there abuses in the medical profession? Of course there are—some bad ones. I have given them no time or attention in this essay, not because of any tact on my part, but because there are abuses in all businesses and callings. There are rotten newspapermen and rotten lawyers and rotten retail stores, but we don't judge the newspaper business by the hacks, or the legal profession by its shysters or the merchandise business by its Shylock operations. So neither should the medical profession as a whole be judged by some of its more questionable practises or characters.

I'll give you just one example of a questionable practise that can be justified under examination. The head of a large hospital in another city was under considerable pressure because he was refusing to encourage the profuse use of x-rays and prescriptions in the hospital's pharmacy. The reason for this was that the hospital had to deliver so much revenue per square foot or however they figure it. On the surface this looks like a sharp practise, and his refusal seems more than justified. However, no hospital that I know of seems to ever show a profit. If the money was not secured one way it would have to be secured another, so what is the answer?

And after all maybe some of the unnecessary x-rays and prescriptions did some good. By way of justification I might say that I was talking with the manager of a large automobile repair shop not too long ago. We happened to be discussing the matter of brake adjustments. He commented that he charged only \$1.19 for an adjustment, but that if he had to depend upon that income alone it would be impossible to maintain the department. Where he made his profit was in those other things he found wrong with the brakes when he set out to adjust them. Perhaps the hospitals are in the same predicament.

At this point we pass from realities to the academic. Is modern medicine doing any good? You might answer that it is. But is it really? In order to make a

measure of medical progress let us first say that nature has only one objective and that is to perpetuate life. To accomplish that objective she must cull out the weak and leave only the strong to live. To this end she employs famine, pestilence and war. They are cruel. They are ruthless, but they are effective. Up until now they have done their job well. If the population becomes too great for the food supply, famine sets in and the weak are the first to be eliminated. In the same situation of over-population, pestilence is also effective. We will discuss the special chore of war in a moment.

It is significant that in the perpetuation of all life aside from his own, man follows exactly the same policies as nature. The horticulturist culls out the weak plants and breeds only the strong. The stock breeder eliminates the runts and the scrawny animals in the herd so that they may not weaken the strains of the stronger.

But when it comes to human life we ignore all of this. We try to save everybody. And, of course, the principle figure in all of this is the doctor. With these thoughts in mind we can proceed to some sort of evaluation on the good that the modern medical practitioner is doing.

In my opinion the greatest single triumph of modern medical science is the conquest of pain. If it had accomplished that alone and nothing more it would have more than justified its existence.

A second measure of success lies in medicine's ability to repair healthy tissue that has been damaged. A strong healthy soldier goes into battle. He is shot by a bullet. A generation ago he would have died and his strength would have been lost for future generations. But today it is more than possible that the damage can be repaired, and if it can, the man is as good as new again.

But when we pass this point in medical progress we begin to look askance. Today a very great of medical attention and effort is expended in saving the weak. I am not referring to those extreme cases where medical science only succeeds in keeping a man alive without repairing him to a point where he can really live again. What I am referring to are those instances where medical science has succeeded in staving off those diseases that would otherwise have eliminated the weaklings. Or again those instances where a man who is inherently weak is able to live because of the marvels of modern medical science. Is there any question that in preserving such individuals we are adulterating the race?

I notice that the blood pressure of some of you is rising so let me repeat again that this part of the discussion is strictly academic. Parenthetically, I might say that if it weren't for some of those marvels I am

presently deploring I, myself, would probably not be here.

But even tho we insist on taking a humane view of humanity and preserving the lives of even the weak at all costs the hard fact remains that in the end we must defeat our purpose.

People are prone to look on the struggle with Russia as an issue between two opposing ideologies. Actually, if they would look deep enough, they would find that the struggle is more biological in nature.

War, as a handmaiden of nature, acts in an entirely different way than famine or pestilence. With the two latter, the weak are eliminated first. In war the strong are eliminated first because they are the first line soldiers. The function of war in nature seems to be to eliminate the weaker of two groups. There were strong men among the Indians, but the Indians as a group were weaker than the white man.

Far better examples than this are the rise and fall of various civilizations. A small group of tough hungry men conquer everything around them. From the fruits of their victory they become rich and prosperous and also fat and flabby and weak. When their bodies and minds have deteriorated to a point where they are no longer useful in nature's scheme of things they are conquered by another group who are stronger and more virile. In such a way does nature perpetuate life.

Now the question we have to ask ourselves is: has modern medicine with its ability to save the weak and thus adulterate the virility of the western populations actually accelerated this cycle of decline? You could make a very good argument that it has.

Or again (and still academic) medical science takes a great deal of pride in the part that it has played in lengthening the span of life. But time is only relative. Is it better to live to be sixty than fifty? Is it better to live to be seventy than sixty, and eighty than seventy? So far the results don't show it.

We are saving men for their old age but we haven't done much about providing happiness for their old age. What we are saying to the aged now is, "we are giving you ten years more to exist but that is all we can provide for you."

Here again we get back to one of the great faults of modern medicine—the dedication to the principle that if you can cure the disease or perpetuate life you have been successful. What happens to the subject in all of this is of no importance.

Well, enough of these gloomy views.

I believe that I mentioned at the beginning of this paper that one of its intended purposes was to explore the present situation of the medical profession with the idea of determining whether we would have socialized medicine.

I would be brash indeed to make any predictions but traditionally certain actions always produce equal reactions.

During the past thirty years the American people have been conditioned to calling on the government for help at the slightest provocation. It is no longer considered a disgrace to go on relief, to apply for crop loans or unemployment compensation. It's like a kid going to the old man for money.

In view of the steadily increasing costs of being sick how long is it going to be before there is a concerted drive for government subsidization of medical programs? So far the private health organizations have been able to stem the tide, but how long are they going to be able to do so?

When I first joined Blue Cross fifteen or twenty years ago I believe the cost of my family protection was something like \$1.50 a month. Now it is around \$6.00. Since that time I have also taken on Blue Shield. I believe that the combined cost of the two is about \$12.00. The other day the representative of this organization presented us with a new proposal for expanded benefits. Total cost around \$15.00 a month, or \$180.00 a year. We have now gotten to a place where health insurance represents important money, and is a real factor in the budget of a man who may be making \$100 a week or less.

There is another item of expense that I haven't mentioned and that is the cost of educating a doctor. I am informed that it amounts to from \$15,000 to \$30,000. A sum like that is far beyond the means of the average family and yet we are in dire need of more physicians. Already there is talk of the government subsidizing medical education. But when the government subsidizes anything it also takes a hand in its control. If the government starts paying for medical education it can be taken for granted that it is going to say when and how those doctors practise.

Already there is a strong movement for aid to the aged in extended illness. I am guessing that this move is going to be successful and if it does it will be the opening wedge. Benefits will be steadily expanded downward thru the age groups until everybody is protected—at a cost, of course, in taxes.

What about the loss in doctor-patient relationships with socialized medicine? I have already pointed out that that has long since gone. What's the difference between going to a government doctor who has no personal interest in you or a specialist who has no personal interest in you either?

I have mentioned that the medical profession's greatest triumph is the conquest of pain, and whatever happens we can be assured that it will be painless, so let's not worry.



Adenoma of the Adrenal Cortex Causing Cushing's Syndrome

Edited by JOHN D. WARKENTIN, M.D.

Dr. Klionsky (Moderator): The case for presentation today is a good illustration of Cushing's syndrome, an uncommon but interesting and often challenging condition. May we hear the history, please?

Mr. Thies (Student): The patient is a 44-year-old housewife who entered the medical center with the complaint of easy bruisability.

She had been in good health until 1958 when, because of increasing nervousness, irritability and emotional depression, she was admitted to a neurological hospital where she received electro-shock and insulin therapy, an estrogen preparation and thyroid extract, but was discharged a month later without any appreciable improvement. After leaving the hospital she noted increasing bruisability so that even pressure or slight trauma resulted in a bruise. Easy bruisability had been present for most of her life and had also been a complaint of her mother and sisters. She gained fifteen pounds in weight and noted a change in the distribution of her fat. Her face, neck and trunk increased in size. Growth of hair was noted on her face. Her skin became thin and easily torn, and her legs became pigmented. There was also increased irritability, nervousness, fatigability and weakness. The weakness was particularly marked in the thigh muscles which made climbing even one flight of stairs extremely difficult. She noted some joint pain, particularly of the right hip and the right wrist. There was increased bleeding from hemorrhoids which had been present for a long time. Her local physician also discovered hypertension and began treatment for this. She believed that she had received cortisone in the summer of 1960.

The patient had had four pregnancies of which two ended in abortions during the first trimester. One pregnancy was normal and the fourth baby died two hours after delivery. All four pregnancies were complicated by severe nausea and vomiting which required hospitalization. She had had a complete hysterectomy

in 1955 apparently because of dysmenorrhea. A fall downstairs in November 1959 was followed by pain in the pelvis.

On physical examination the patient was obese and appeared much older than her stated age of 44. Her skin was thin with dilated veins visible over the entire body. There were many ecchymoses on the trunk, arms and legs, and the skin over the lower legs showed a brownish pigmentation and areas of scarring (*Figure 1*). The hair of the scalp was sparse and dry, but there was an increase of hair on the jaw and chin as much as half an inch in length. The face was moon-shaped, and there were large fat pads on the back of the neck and above the clavicles. The trunk centrally was obese and the breasts were large and pendulous. Purplish striae were present on the abdomen. There was moderate pitting edema of the lower legs. The muscles of the thigh appeared atrophic. The blood pressure was 185/125, the pulse 85 per minute and regular and the respirations 22 per minute and regular. The remainder of the physical examination disclosed no significant abnormal findings.

The hemoglobin on admission was 14.6 gm. per cent, the white blood count 8,250/cu. mm., with 69 per cent filamented neutrophils, 23 per cent lymphocytes, 7 per cent monocytes and 1 per cent basophils. The total eosinophil count was 22 per cubic millimeter. The hematocrit was 46 ml. per 100. Platelet count was 208,000, bleeding time, 1 minute, clotting time, 13 minutes, prothrombin time, 82 per cent of normal. A 2-hour post prandial blood sugar was 74 mg. per cent. A number of laboratory determinations, including the urinalysis, blood urea nitrogen, creatinine, uric acid, the serum electrolytes, calcium, phosphorus and serum proteins were all within normal limits. Two determinations of 24 hour urinary excretion of 17-hydroxycorticosteroids were 13.9 mg. and 9.6 mg. (normal 3-11 mg.) and of 17-ketosteroids, 6.3 mg. and 10.7 mg. (normal 5-15 mg.). The Deca-



Figure 1a. Numerous ecchymoses in various stages of resolution in the antecubital fossa.

dron (dexamethasone) suppression test resulted in no decrease in the excretion of either steroid; on the other hand, even after a dose of 2.0 mg., the urinary 17-hydroxycorticosteroids rose as high as 18.2 mg. per 24 hours and the 17-ketosteroids rose to 14.2 mg. per 24 hours.

Dr. Mantz: Did the patient have a positive tourniquet test?

Mr. Thies: The Rumpel-Leede test was not performed, but a simple blood pressure determination frequently resulted in a bruise beneath the cuff.

Dr. Klionsky: Easy bruisability is an uncommon presenting complaint in Cushing's syndrome. Dr. Larsen, what were your thoughts regarding the differential diagnosis of this patient's bruising when you first saw her? Secondly, will you discuss the pathogenesis of the hemorrhagic disturbances in this syndrome?

Dr. Larsen: The hemorrhagic lesion on the patient's skin were multiple intracutaneous ecchymoses. Evidence of increased vascular fragility was manifest by the presence of petechial hemorrhages in response to the blood pressure cuff. The distribution of the bruises on the dorsum of the hand and the forearm is quite characteristically seen in patients of older age with marked thinning of the skin and subcutaneous tissue. This same type of purpura is also seen in patients who have been receiving corticosteroids for a prolonged period of time. This is indistinguishable

from that seen in Cushing's disease and the pathogenesis should be the same.

There are probably two general causes for the hemorrhagic disturbance in patients with Cushing's syndrome. The first is the thinning of the skin and reduction in the subcutaneous tissue which is the response to the marked protein depletion. This loss of supportive structures to the vessels make them extremely fragile and friable and hence ecchymoses occur, both spontaneously and secondary to slight trauma.

The second cause for the hemorrhagic tendency in these patients could be related to the blood and tissue ascorbic acid levels. It has been shown that in patients on ACTH and corticosteroid therapy, as well as in patients with Cushing's disease who have a marked bleeding tendency, the blood ascorbic acid levels may be nil and the hemorrhagic tendencies have markedly improved on therapy with ascorbic acid, 200 to 300 mg. daily. It would have been interesting to have this determination in this patient.

Dr. Klionsky: May we see the x-rays, please?

Dr. Hartman: The films of the pelvis show generalized demineralization and symmetrical healing fractures of both superior rami of the pubis. Films of the chest, abdomen and skull show osteoporosis as the only remarkable finding. An intravenous pyelo-



Figure 1b. Pigmentation, scarring, edema and telangiectasis of the lower leg.

gram demonstrates prompt visualization of the kidneys. They are normal in size, but the left is slightly displaced laterally and downward. There is slight blunting of the superior calyx on the right, but this is a minor change. The ureters are normal in course and caliber. There is a vague shadow that somewhat suggests a mass above the left kidney.

Dr. Klionsky: Dr. Kittle, will you please review the clinical and laboratory diagnosis of Cushing's syndrome, particularly with reference to the determination of its etiology, that is, whether it is iatrogenic or due to a lesion of the adrenal cortex, either hyperplasia, adenoma or carcinoma.

Dr. Kittle: The diagnosis of a well-developed case of Cushing's syndrome is usually quite evident from the clinical features alone. Today's patient demonstrates the majority of the typical characteristics of this disease. The moon-shaped facies, the truncal obesity, the typical shoulder and neck fat pads, the purplish striae, atrophic extremities, hypertension and hirsutism all make one strongly suspect a Cushing's syndrome. The diagnosis is definitely established by the laboratory findings, of which the most important is the determination of urinary excretion of 17-hydroxycorticosteroids. This measures the degradation products of the corticoids and androgens. Other laboratory findings are largely corroborative and do not of themselves make a positive diagnosis.

The clinical determination of the etiology of Cushing's syndrome is not as easy. An iatrogenic etiology can be determined by the history. This patient did give a vague history of having received a corticoid-like compound many months previously, but because of the long elapsed time we discarded this possibility.

Differentiation of primary hyperplasia of the adrenal cortex from an adrenal neoplasm is made by the Decadron suppression test which is positive in cases of hyperplasia and negative in cases of adenoma or carcinoma. In this patient, there was no suppression, thus placing the etiology on the side of a neoplasm. The differentiation of an adenoma from a carcinoma is related generally to the total amount of excretion of degradation product. In the present case the quantity was only slightly increased above normal, indicating an adenoma rather than a carcinoma. The 17-hydroxysteroids are usually above 30 mg. per day in cases of carcinoma. A further help in the differentiation may be obtained by the response noted after ACTH stimulation: hyperplastic adrenals will show an excessively great increase in secretion, adenomas may show a slight response while there is usually no effect on the secretion by carcinomas.

It is generally agreed today that Cushing's syndrome due to primary disease in the adrenal, whether hyperplasia, adenoma or carcinoma, should be attacked surgically since it is essential to remove the

hyperfunctioning adrenal tissue. Primary hyperplasias are treated by bilateral adrenalectomy and adenomas by excision of the tumor together with its gland of origin. Naturally if a bilateral adrenalectomy is done, the patient will have to be maintained on substitution corticoid therapy. Some authors have recommended subtotal adrenalectomy (75-90 per cent) for hyperplasia, but an appreciable percentage of patients so treated will develop a recurrence of their disease after a period of remission. Since adequate substitution therapy is now available, it is believed that a total bilateral adrenalectomy is the treatment of choice for primary hyperplasia. If the tumor is an obvious carcinoma, then the surgical treatment generally provides only temporary remission and should be regarded as a palliative measure.

In the present case, we elected to explore the patient's adrenals by two separate posterior incisions. The left adrenal was explored and a large adenoma, about 5 or 6 cm. in diameter, was found occupying most of the adrenal gland. This was resected and the kidney was biopsied. The right adrenal gland was also inspected and on gross examination it appeared to be hypoplastic. The patient had an uneventful post-operative course. She was maintained initially on both ACTH and cortisone, but by the tenth post-operative day both had been discontinued and her condition remained stable, indicating that the right adrenal had resumed adequate function. On the day of discharge, the 24-hour urinary excretion of 17-hydroxycorticosteroid was 5.1 mg. and of 17-ketosteroid, 4.2 mg.

Dr. Smith: Can you tell the difference between an adenoma and a carcinoma on gross inspection alone?

Dr. Kittle: Yes, I believe so. The carcinomas are generally large and invasive and frequently involve the kidneys and surrounding tissue. The few patients that I have seen who have had very high values of urinary corticoid degradation products have had adrenocortical carcinomas.

Student: How are these patients prepared pre-operatively?

Dr. Kittle: The pre-operative preparation has become much simpler than formerly. We used to prepare these patients with cortisone for several days. Today's patient received 100 mg. of hydrocortisone the night before operation, again on the following morning and again during the operation. Adequacy of postoperative corticoid substitution therapy is judged by the development of any hypotension. This patient received from 900 to 1,200 mg. of cortisone during the first postoperative day and remained normotensive. An excess of corticoids will not hurt these patients, but a hypotensive crisis due to inadequate substitution may very well be fatal.

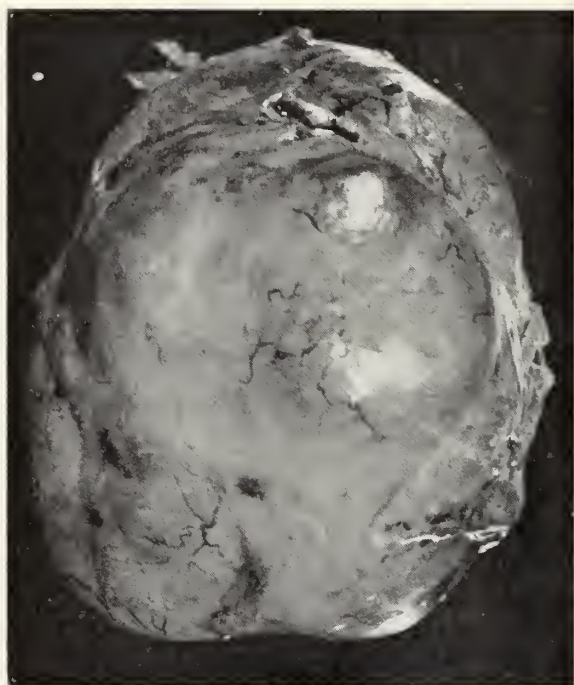


Figure 2a. The tumor is smooth and rounded and appears encapsulated.

The reason for exploring the right adrenal after finding the adenoma in the left one was largely for assurance. The incidence of bilateral adenoma is extremely small, but we wanted to be certain that there was some adrenal tissue on the right side. This is not so important today with adequate substitution therapy as it was in the past when the removal of all functioning adrenal tissue was fatal to the patient.

Student: Do you make use of retrograde air contrast studies pre-operatively to define these tumors?

Dr. Kittle: I do not believe this is necessary although occasionally an adenoma or hyperplasia may be demonstrated by this technique. Once the diagnosis of Cushing's syndrome is made, it becomes a surgical problem, and I consider the air contrast study an unnecessary and frequently misleading procedure.

Dr. Klionsky: Dr. Mantz, will you comment on the reliability of a clinical or pre-operative differentiation between hyperplasia, adenoma and carcinoma of the adrenal gland?

Dr. Mantz: The clinical differentiation between hyperplasia, adenoma and premetastatic carcinoma in patients with hyperfunction of the adrenal cortex should occupy a prominent position in the pre-operative evaluation of such patients. Unfortunately the methods available at the present time are somewhat crude and not always reliable. I shall deal with them only in generalities.

Estimation of adrenal size as determined by physical examination and x-ray studies is probably the

least reliable means. In general, adrenocortical carcinomas tend to be more bulky than adenomas. Hyperplasias do not frequently produce any clinically detectable derangements of gland size.

There is some variability in the levels of urinary 17-ketosteroid excretion between these three lesions, the amount being highest in carcinoma and intermediate in adenoma. Although increased excretion occurs regularly in adrenocortical hyperplasia, this is usually of only moderate degree. The adrenogenital syndrome, of course, represents a noteworthy exception.

The type of 17-ketosteroid excreted may be of some value in differentiating between carcinoma and hyperfunction on the basis of benign lesions. In general, elevated 17-ketosteroid excretion in carcinoma is due to increased output of 3 beta 17-ketosteroid whereas in benign lesions the elevation is largely due to the alpha compound. Here again great variability exists as indicated by recent studies, such as those of Gallagher¹ who was able to show elevation of beta fraction excretion in only 2 of 5 cases of adrenocortical carcinoma.

As Dr. Kittle indicated, the amount of adrenocortical degradation product excreted in the urine may yield some insight into the nature of a hyperfunctioning lesion. In general these levels tend to be higher in carcinoma than in adenoma or hyperplasia. Furthermore, there tends to be a greater elevation of 17-hydroxycorticoids in hyperplasia and of 17-ketosteroid in neoplastic lesions. Here again this only reflects a trend which is difficult to apply to a given patient. It should be remembered that adrenocortical carcinoma may be functionally anaplastic with little or no elaboration of hormonally active secretion.



Figure 2b. The cut surface shows indistinct lobulation and cystic areas of necrosis.

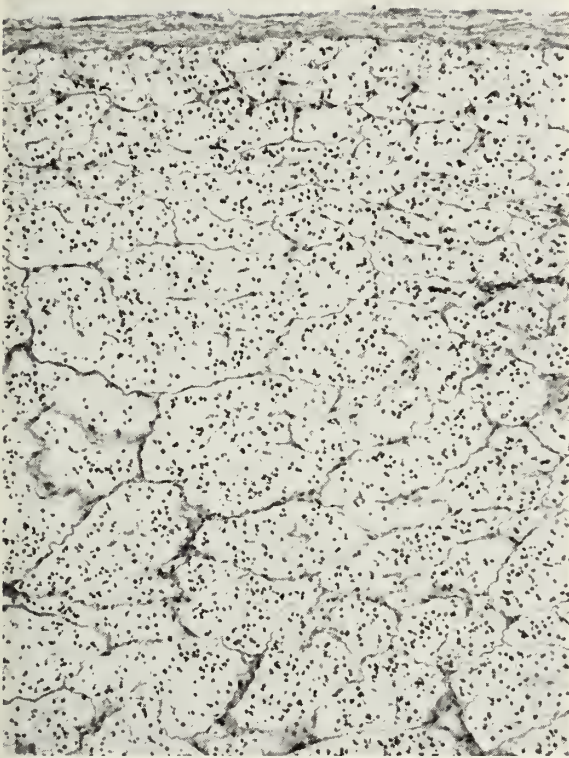


Figure 3. The tumor is well encapsulated. The cells are uniformly large with vacuolated, finely granular cytoplasm and small, central nuclei. Trabecular arrangement is evident. Hematoxylin and eosin. $\times 90$.

Currently emphasis is being placed on measures to demonstrate dependence of the lesion on the pituitary as determined by ACTH stimulation or by pituitary suppression. In general, hyperplasias respond to ACTH stimulation with marked increase in 17-ketosteroid and 17-hydroxycorticoid excretion while neoplastic lesions do not. Likewise suppression of the pituitary by 9 alpha fluorohydrocortisone and other compounds has resulted in reduced excretion of 17-ketosteroids and 17-hydroxycorticoids in hyperplasia without such reduction in neoplastic lesions. These tests have not proven of great value in differentiating between benign and malignant neoplasms.

Dr. Klionsky: Will you describe the specimen from today's patient?

Mr. Mantz: The gross specimen consists of a large, rounded, smooth tumor which measures 6 cm. in its greatest dimension. It has apparently completely replaced normal glandular tissue since none can be differentiated. The tumor is well delimited and appears encapsulated (Figure 2a). It is bright yellow and divided into indistinct lobules by fine trabeculae which traverse the tumor. There are multiple areas of necrosis which in some areas produce a cystic appearance and in others have been replaced by fibrous tissue

indicating that this is a recurrent process of long standing (Figure 2b).

Microscopically, the cell types are quite uniform and trabeculation is again evident. The tumor is enclosed by a fibrous capsule of variable thickness which in some areas incorporates tumor cells. This is not necessarily evidence of invasion as one might think, since the normal adrenal cortex frequently shows a similar feature. A majority of the tumor cells are large, vacuolated and have a finely granular cytoplasm. Their nuclei are small, centrally placed and uniform in size and shape. Mitoses are not evident (Figure 3). In some areas the cells are smaller, somewhat cuboidal and show an extensive degree of granularity of their cytoplasm (Figure 4). These cells resemble those of the zona glomerulosa of the normal adrenal, but their presence does not necessarily indicate any excessive aldosterone production in tumors of this type. A third cell type which is large and granular with a golden yellow pigment in the cytoplasm resembles the cells of the normal zona reticularis and is, I believe, indicative of some androgenic activity. These cells are found in small numbers. The pattern in general is that of trabeculation similar to the zona fasciculata, but throughout the tumor there is a great confusion in the arrangement of the cells. There is a slight de-



Figure 4. In some areas, the cells are smaller, cuboidal and more densely granular, resembling those of the zona reticularis. Hematoxylin and eosin. $\times 90$.

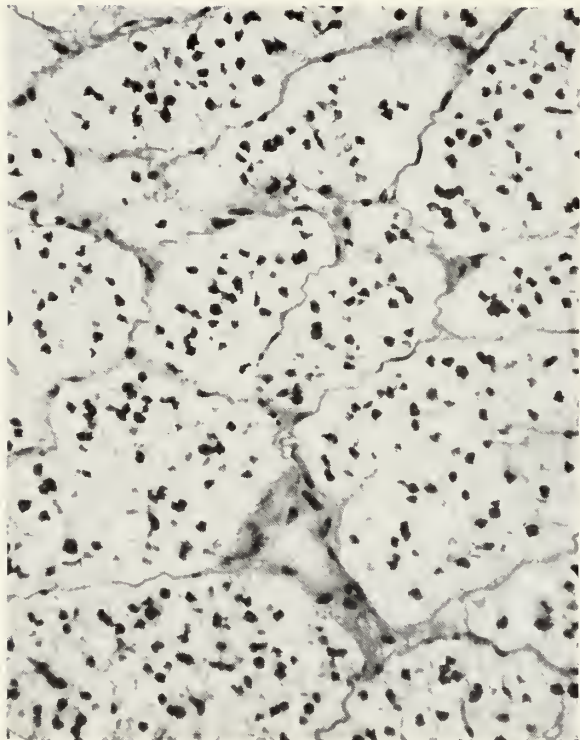


Figure 5. Higher magnification shows slight nuclear irregularity. Hematoxylin and eosin. $\times 250$.

gree of nuclear irregularity and hyperchromatism which is apparently a degenerative change (Figure 5). This is observed frequently in tumors of endocrine origin and cannot be used reliably as a criterion of malignancy. The fine, fibrous septa contain a profusion of capillaries which again is a feature not only of all endocrine organs but also of their tumors.

I feel that this is the benign adenoma, but such a diagnosis should be made with reservation. I disagree with Dr. Kittle concerning the ease with which the gross diagnosis of malignancy of an adrenal tumor can be made. It is true that in a number of adrenocortical tumors their malignant nature is made obvious by local invasion or early evidence of metastasis, but this is not true in a significant proportion of carcinomas which may appear entirely encapsulated and grossly look quite benign. Even the microscopic determination of malignancy may be fraught with difficulty since some tumors of precisely the histologic morphology that we have seen today are capable of invading veins and giving rise to metastases at a later date. For this reason the diagnosis of adenoma in this type of functioning tumor is made with reservation and the patients should always be followed for some time after their operation.

There is an experimental aspect of these tumors which may in the future have important therapeutic implications. It was observed some years ago that the crude preparation of DDD, an analog of the insecti-

cide DDT, had a specific necrotizing effect on adrenocortical tissue and caused marked functional impairment in the dog. This crude technical preparation did not affect the clinical course of Cushing's syndrome in several cases, but recently the ortho para prime isomer of DDD has been shown by Bergenstal² to result in objective regression of metastases and steroid suppression in a significant number of patients with adrenocortical carcinoma. More recently, a member of our department, Dr. John Nichols,³ has demonstrated that the meta para prime (m-p¹) isomer is more active in dogs, but this compound has not yet been evaluated in humans. The mode of action of DDD and its isomers on the adrenal cortex is not understood, but they appear to have a specific effect on the inner layers, leaving the zona glomerulosa intact, both morphologically and functionally. The therapeutic use of these substances is still in the experimental stage, but it is possible that in the future one of the isomers already available or another analog yet to be developed may prove highly useful and may even supplant surgical treatment in some cases.

Dr. Klionsky: Dr. Kittle, what are your future plans for this patient?

Dr. Kittle: She will be examined at regular intervals for evidence of recurrence, and to note whether her remaining adrenal gland is functioning normally.

Dr. Klionsky: This is an age when iatrogenic Cushing's syndrome is an all too common diagnosis in our clinics and wards. We have been privileged to discuss a patient with Cushing's syndrome secondary to benign adenoma of one adrenal. We are fortunate that increasing knowledge of adrenal physiology and the ready availability of a broad armamentarium of potent corticosteroid drugs have made the diagnosis and combined medical-surgical treatment of primary hyperadrenalism a sure and safe procedure.

References

1. Gallagher, T. F.: Adrenocortical Carcinoma in Man. The Effect of Amphenone on Individual Ketosteroids. *J. Clin. Endocrinol.* 18:937-948, 1958.
2. Bergenstal, D. M., Hertz, R., Lipsett, M. B., and Moy, R. H.: Chemotherapy of Adrenocortical Cancer with OP¹ DDD. *Ann. Int. Med.* 53:672-682, 1960.
3. Nichols, J. M.: Studies on an Adrenocortical Inhibitor, Chap. 5 in "Pathologic Physiology of the Adrenal Cortex," edited by H. D. Moon, P. Hoeber, New York, 1961.

IN A QUANDARY trying to explain medical care costs in the light of today's over-all rising prices? If so, you'll be interested in the pages from the American Medical Association's new booklet "The ? Cost of Medical Care." The 16-page cartoon pamphlet is being distributed through the Kansas Medical Society. For your copy, just write to the JOURNAL.

Radiology

Case of the Month

Edited by COLVIN H. AGNEW, M.D., *Kansas City*

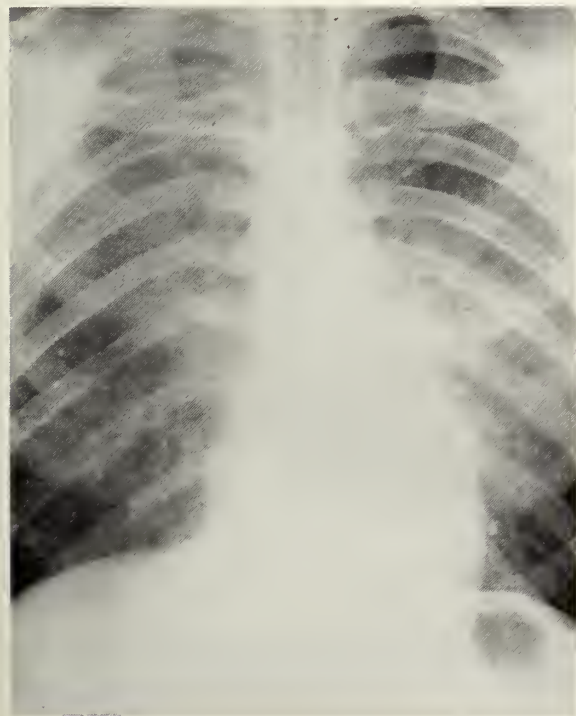
Radiologic Description

Finely granular or feathery parenchymal densities radiating from the hilar region fade into the parenchyma. Hilar adenopathy is not obvious. The cardiac silhouette is normal.

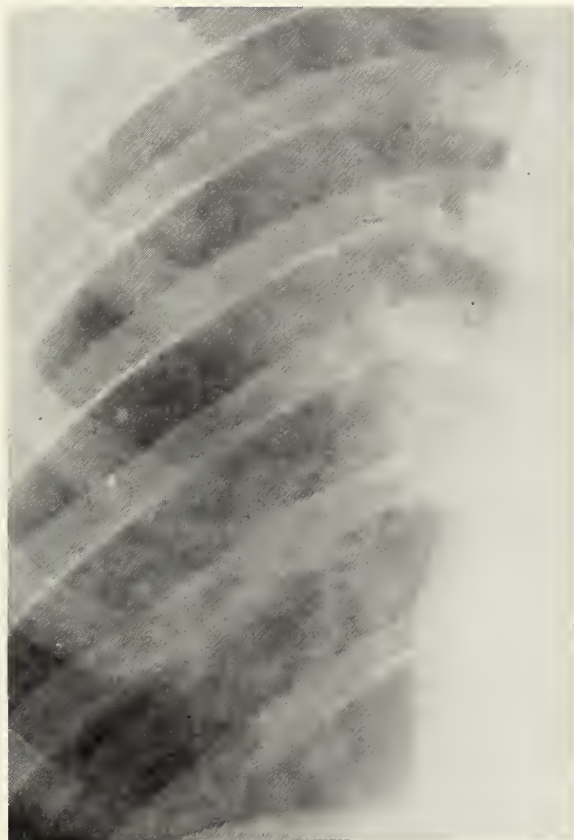
This distribution and appearance is commonly seen in severe acute pulmonary edema but may be exhibited by such conditions as malignant lymphoma, sarcoidosis, pneumoconiosis, idiopathic pulmonary fibrosis, bronchiolar carcinoma, pulmonary alveolar micro-lithiasis, and pulmonary alveolar proteinosis.

Case Report

This 29-year-old male Negro was admitted complaining of chest pain and fever. Treatment with antibiotics relieved the fever. Following lung biopsy he was discharged and has been asymptomatic until the present admission (1 year later). At this time he had had an upper respiratory infection for three days with a cough productive of a yellow sputum, low



The chest x-ray taken during the first admission reveals extensive alveolar disease.



An enlargement of the peripheral right lobe showing the fine nodular densities at the margin of the more confluent alveolar lesions.

grade fever, and headache. Smears of the sputum were negative for AFB. Pulmonary function studies were reported as: vital capacity 70 per cent predicted normal; residual volume 0.718 liters, and total lung capacity 3.69 liters. The chest x-ray again demonstrated the same finely granular appearance with a superimposed small patchy area of pneumonitis in the right lower lung. This pneumonitis cleared considerably with appropriate antibiotic therapy.

Discussion

In 1958 Rosen, Castleman, and Liebow collected "27 cases of a remarkable disease of the lungs that consists of the filling of the alveoli by a PAS positive proteinaceous material, rich in lipid."⁵ Sporadic cases

have appeared in literature presenting facets of the disease.^{1, 2, 3, 4}

The ultimate fate of these patients is obscure. One-third have already died with their disease. It has been suggested that superimposed infection may not be handled as well as by the normal lung.

The principal clue to the correct diagnosis is the disproportion between radiologic and clinical findings. There is a notable absence of hilar adenopathy usually seen in malignant lymphoma and sarcoidosis. Laboratory support for the diagnosis may be found through cytologic examination of the sputum. Carlson and Mason¹ demonstrated septal cells from a patient in whom the diagnosis of pulmonary alveolar proteinosis is highly probable.

While etiology is unknown, treatment is symptomatic and prognosis is uncertain. Lung biopsy is strongly recommended. The radiologic appearance is highly suggested but not diagnostic.

Diagnosis

Pulmonary alveolar proteinosis.

Acknowledgement

The clinical data was submitted to the (case of the week—department of radiology) teaching material by Marvin Westphal, M.D., Radiologist K.C. VAH, Kansas City, Mo.

References

1. Carlson, D. J., and Mason, E. W.: Pulmonary Alveolar Proteinosis. *Amer. J. Clin. Path.* 33 (1):48-54, Jan. 1960.
2. Fraimow, W., Cathcart, R. T., Kirshner, J. J., and Taylor, R. C.: Pulmonary Alveolar Proteinosis. *Amer. J. Med.* 28:458-567, 1960.
3. Jones, C.: Pulmonary Alveolar Proteinosis With Unusual Complicating Infection. (A Report of Two Cases) *Amer. J. Med.* 29:713-722, 1960.
4. Lull, G. F., Beyer, J. C., Maier, J. G., and Morss, D. F.: Pulmonary Alveolar Proteinosis. *Amer. J. Roent. & Rad. Ther. & Nuc. Med.* 82:76-83, July 1959.
5. Moertel, C. G., Woolner, L. B., and Bernatz, P.: Pulmonary Alveolar Proteinosis. *Proc. Mayo Clinic*, 34:152-157, Mar. 18, 1959.
6. Rosen, S. H., Castleman, B., and Liebow, A.: Pulmonary Alveolar Proteinosis. *New Eng. J. Med.* 258:1123-1142, 1958.

Angina Pectoris

(Continued from page 143)

are taking Myordil alone. The remaining 17 patients are comfortable but have been continued on their original therapy plus the addition of Myordil. This regimen has kept them symptom free for the most part, however, occasional mild attacks do occur.

In our series, side effects have been few. As mentioned above, two patients discontinued the drug because of nausea. Originally we used 100 mg. after each meal and at this dosage level gastric irritation occurred in a moderate number of patients. For the last eight months, all patients have been given 50 mg. after meals which has avoided the gastric distress. We have observed no dermatologic or hematologic disturbances in any of the group. Blood chemistries have not been altered. Neither urinary retention nor uterine bleeding has occurred. Electrocardiograms have shown improvement, but as this frequently occurs with the passage of time, we cannot attribute this directly to the drug. The exception to this statement is the disappearance of premature ventricular beats which we believe, was related to the action of Myordil.

It is not our purpose in this brief paper to present a detailed statistical analysis of our observations, but rather to make known the favorable impression which this new drug has given us. Finally, it is our belief that Myordil is of definite and proven value in the treatment of angina pectoris and deserves further clinical use.

References

1. Data in the files of the Department of Medical Research, Winthrop Laboratories, New York, N. Y.
2. Brown, T. G., Jr., Green, T. J., and Green, R. L.: Cardiovascular activity and toxicity of amotriphene (Myordil, Win 5494), submitted for publication.
3. Harris, Raymond: Clinical observations on a new coronary vasodilator (Win 5494), *Am. J. Cardiol.*, 4:274, Aug., 1959.
4. Sandler, Gerald: Clinical evaluation of a new coronary vasodilator, 3-dimethylamino-1,1,2-tris (4-methoxyphenyl)-1-propene hydrochloride (Win 5494), *Am. Heart J.*, 59:718, May, 1960.

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Committee REPORTS

Immunization Survey of Kansas School Children, 1959-1960

"IT CANNOT HAPPEN HERE," or "it can't happen to me," are the famous last words often heard before a disaster strikes. These are not necessarily words of doom if some thought has been given to the prevention of misfortune, rather than a complacent belief that it can never happen. Citizens ordinarily protect their property and assets by insurance against loss or irreparable damage. They pay a regular fee for this protection even though they know that the lightning will probably not strike the barn, that the furs will probably never be stolen, that the house will probably never burn down. For some reason, this is not true when personal health is involved. Many people do not seek medical aid until they become acutely ill, even though attention to early symptoms may forestall a more serious problem. Many neglect the simplest preventive measures.

Immunizations have been available for 40 years,

The *Journal* is happy to reprint in part the Immunization Survey conducted jointly by the Kansas State Board of Health and the Kansas State Department of Public Instruction. Space requirements prevent reproduction of the entire booklet but this has been distributed to many physicians in the state. Two charts and two maps are included to impress us with the deplorable level of immunization of Kansas school children.

but surveys have repeatedly revealed that the public has not taken advantage of these simple protective measures even though the cost is trifling and the discomfort small. Should diphtheria strike a member of the family, should a small child die of lockjaw, should an unprotected parent acquire paralytic polio, what needless personal and social problems result! Such occurrences are deplorable when one realizes that they can be avoided by proper immunizations, the equivalent of insurance on one's material belongings.

National surveys reveal that in many areas the level of protection against polio is surprisingly poor, and that, although the vaccine is available, it is not being widely used, and this is true of other immunizations also.

In Kansas, there has been, until recently, an almost complete lack of information regarding the levels of protection against polio, smallpox, diphtheria, pertussis, and tetanus. Early in 1958, some of the local health units and school systems were queried regarding the availability of such data. Most replied that they did not have such information. Yet, data of this kind is invaluable in the event of an outbreak of these diseases, permitting more effective control measures to be taken, and also serves to forewarn communities whose immunization levels are dangerously low. Public health authorities agree that at least 70 per cent of the total population (and probably more) must be immunized if epidemics are to be avoided.

To determine the levels of protection in Kansas, a survey was initiated involving all First and Sixth Grade children. Questionnaires were distributed to

approximately 80,000 students.* The information was then analyzed and tabulated in the following way:

1. The number and percentage of children reported as being completely immunized. (Complete immunization means that the initial series and all boosters were up to date at the time of the survey.)
2. Information for each county on the combined totals of First and Sixth Grade children for each county, as well as separately for all First Grade children and on all Sixth Grade children.
3. The total returns from the county, and a breakdown of the different immunization levels is recorded.

The levels of protection are indicated by four categories:

- (a) Complete protection. (Initial series and all boosters.)
- (b) Partial protection. (Initial series but not the recall injections indicated.)
- (c) Poorly protected. (Initial series not completed.)
- (d) No protection.

Of 80,000 questionnaires distributed, 51,162, or approximately 60 per cent, were returned. The 30,000 forms which were unreturned provide the possibility for inaccuracy in a wide-scale survey of this complexity. The probability exists that the immunization levels would have been lower in the unreturned segment. A few ambiguous forms received were discarded from the total count.

During the summer of 1960, the total returns on the polio immunizations were published so that those counties where immunization levels were low, would be familiar with the fact before the polio season began. The tabulation of these results according to the categories set forth is included in this report. It should be emphasized that a few counties have subsequently undertaken mass immunization programs either through local health units, medical society plans, or through school organizations.

The conclusion derived from this survey is: The Kansas school child is not as well protected against the common communicable diseases as we would like to believe. Although some counties have adequate protection, the majority do not. In poorly protected areas, outbreak of communicable diseases is an ever-present threat.

* Many persons have participated in this survey and have given considerable time and effort to compile the data so that it will be most useful to every community. The co-operation from the State Department of Public Instruction and of all local units in that department have been the chief factor for the success in obtaining this valuable information. Sincere thanks are due to all of the county superintendents, principals, teachers, and staff of the State Department of Public Instruction, the local health departments and their staffs, and all others who worked so hard.

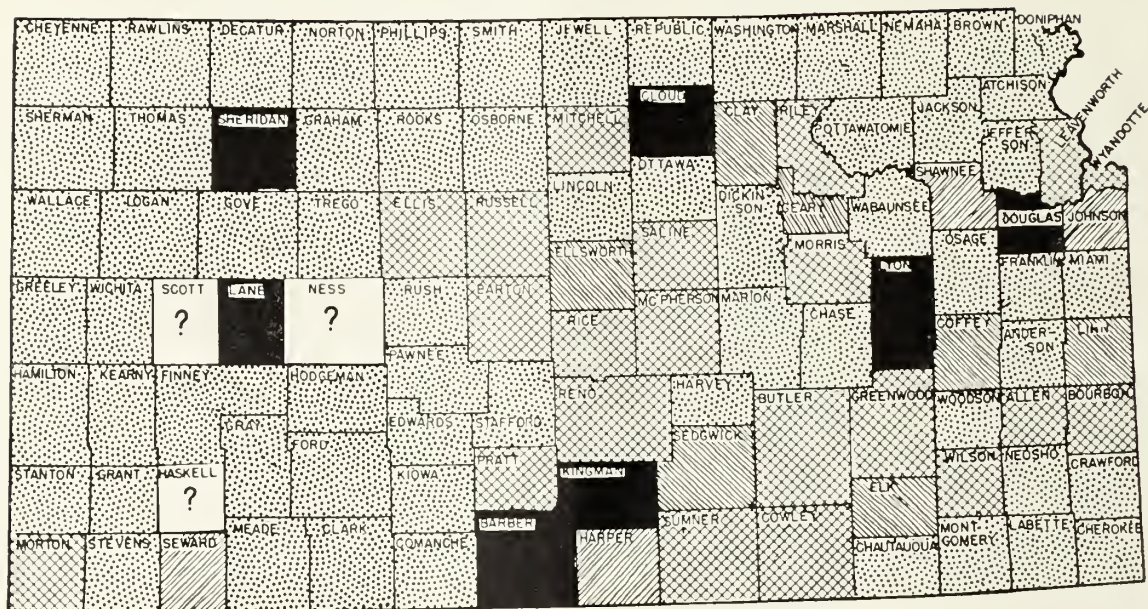
| IMMUNIZATION LEVELS 1959-1960 | | | | | | | | | | | |
|--|------------|-----------------------|----------------------------|----------------------------------|------|-----------|------|---------|------|--------|------|
| KANSAS SCHOOL SURVEY (GRADES 1 AND 6 COMBINED) | | | | | | | | | | | |
| STATE TOTAL | | | | | | | | | | | |
| Grade | Grade Pop. | No. of Forms Recorded | Per Cent of Forms Returned | Per Cent Based on Forms Recorded | | | | | | | |
| | | | | DIPHTHERIA | | PERTUSSIS | | TETANUS | | POLIO | |
| | | | | No. | % | No. | % | No. | % | No. | % |
| Grades 1 and 6 | 86,495 | 51,162 | 59.1 | 21,529 | 42.0 | 23,315 | 45.5 | 22,222 | 43.4 | 30,314 | 59.2 |
| Complete | | | | 9,895 | 19.3 | 4,141 | 8.0 | 8,925 | 17.4 | 4,598 | 8.9 |
| Partial | | | | 13,770 | 26.9 | 16,725 | 32.6 | 13,742 | 26.8 | 13,008 | 25.4 |
| Poor | | | | | | | | | | | |
| None | | | | 5,968 | 11.8 | 6,981 | 13.9 | 6,273 | 12.4 | 3,242 | 6.5 |
| | | | | | | | | | | 15,163 | 29.8 |

IMMUNIZATION LEVELS 1959-1960
KANSAS SCHOOL SURVEY (GRADES 1 AND 6)
STATE TOTAL

| Grade | Grade Pop. | No. of Forms Recorded | Per Cent of Forms Returned | Per Cent Based on Forms Recorded | | | | | | | | | |
|----------|------------|-----------------------|----------------------------|----------------------------------|------|-----------|------|---------|------|--------|------|----------|------|
| | | | | DIPHTHERIA | | PERTUSSIS | | TETANUS | | POLIO | | SMALLPOX | |
| | | | | No. | % | No. | % | No. | % | No. | % | No. | % |
| Grade 1 | 47,866 | 28,383 | 59.3 | | | | | | | | | | |
| Complete | | | | 14,885 | 52.4 | 14,848 | 52.3 | 15,514 | 54.6 | 17,538 | 61.7 | 19,116 | 67.3 |
| Partial | | | | 2,942 | 10.3 | 2,959 | 10.4 | 2,801 | 9.8 | 3,038 | 10.7 | 0 | |
| Poor | | | | 7,502 | 26.4 | 7,380 | 26.0 | 6,865 | 24.1 | 5,683 | 20.0 | 0 | |
| None | | | | 3,054 | 10.9 | 3,196 | 11.3 | 3,203 | 11.5 | 2,124 | 7.6 | 9,267 | 32.7 |
| Grade 6 | 38,629 | 22,779 | 58.9 | | | | | | | | | | |
| Complete | | | | 6,644 | 29.3 | 8,467 | 37.1 | 6,708 | 29.4 | 12,776 | 56.0 | 6,553 | 28.7 |
| Partial | | | | 6,953 | 30.5 | 1,182 | 5.1 | 6,124 | 26.8 | 1,560 | 6.8 | 10,330 | 45.3 |
| Poor | | | | 6,268 | 27.5 | 9,345 | 41.0 | 6,877 | 30.1 | 7,325 | 32.1 | 0 | |
| None | | | | 2,914 | 12.7 | 3,785 | 16.8 | 3,070 | 13.7 | 1,118 | 5.1 | 5,896 | 26.0 |

Kansas State Board of Health, 11-21-60.

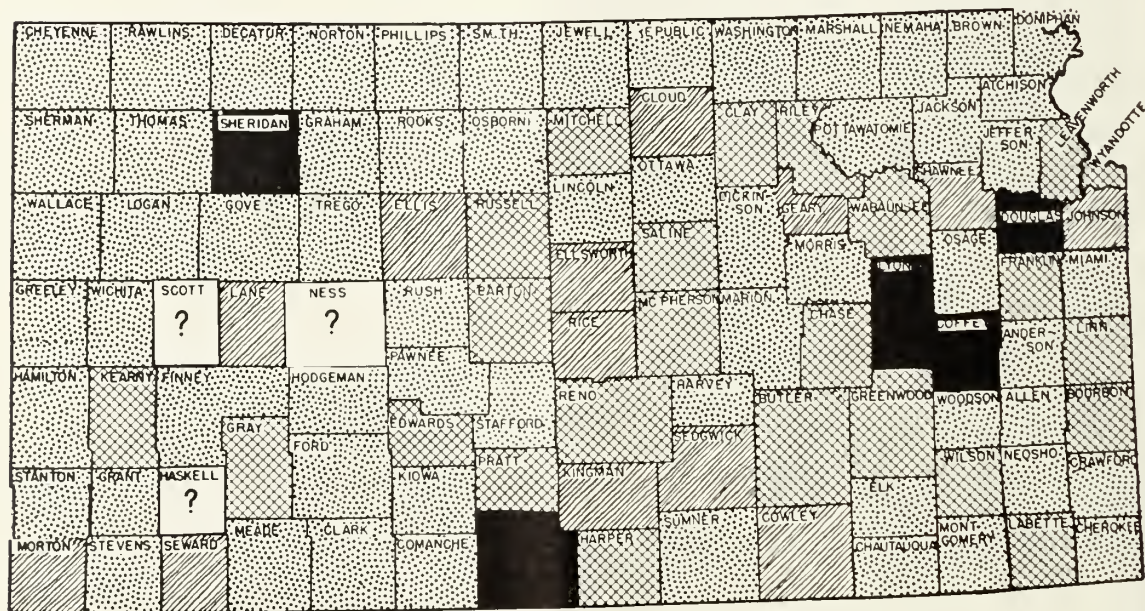
TETANUS IMMUNIZATION LEVELS KANSAS SCHOOL SURVEY 1959-1960







The preventive tools of medicine are widely available to the general public, but the tendency to apathy, or the belief that "the other fellow" has availed him-

self of these materials, is prevalent. It is hoped that, by supplying these facts to interested groups in every county, community action will be forthcoming.

PERTUSSIS IMMUNIZATION LEVELS KANSAS SCHOOL SURVEY 1959-1960



ABOVE 60% 
 50-60% 
 40-50% 
 BELOW 40% 
 INCOMPLETE ?

KANSAS STATE BOARD OF HEALTH 1960

Maternal Mortality

This patient was a 29 year old para IV, gravida III who died in a well-equipped hospital in a small community. Death was attributed to "coronary thrombosis following delivery." There was no autopsy.

The patient's first visit to the physician was one month prior to her expected date of confinement. She had four subsequent weekly visits and went into labor spontaneously two days following the last one. Prenatal care was apparently adequate and there was no significant deviation from normal except a persistent complaint of extreme fatigue. The patient stated that her period of ill feeling had begun with the pregnancy and had necessitated her remaining in bed much of that time.

She was admitted to the hospital in active labor complaining of headache and bloody discharge. Labor appeared to be progressing rapidly and she was taken immediately to the delivery room. Trilene anesthesia was administered with each contraction and she shortly delivered spontaneously a 6 lb., 4 oz. healthy infant with episiotomy being performed under local anesthetic. Following delivery one ampule of Ergotrate and one cc. of Pituitrin were administered. As she was being transferred from the delivery table to the cart she complained of chilling and became cyanotic. Oxygen was immediately administered and warmth was applied generally. Her blood pressure, which was initially 130/80, shortly became unobtainable. She experienced diaphoresis and emesis of dark material. Coramine was administered as was Metrazal intravenously. The patient expired within a few hours with the physician in constant attendance.

Committee Opinion

With the information at hand, the committee felt that management was quite adequate and that death was unavoidable. However, the absence of an autopsy makes it impossible to determine the exact cause of death. The clinical course led the committee to feel that the diagnosis of pulmonary embolism was more likely than coronary thrombosis in a patient of this age and condition. It was also noted that, although it might not have altered the outcome, consultation is desirable in an obviously seriously ill patient.

Classification

Maternal death, indirect obstetric, unavoidable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.



Editorial COMMENT

Immunization Survey

In this issue of the JOURNAL the Immunization Survey of Kansas School Children is reprinted in part. This survey was a joint effort of the Kansas State Board of Health and the Kansas State Department of Public Instruction and it has already been widely distributed to the physicians of Kansas. We hope that its re-emphasis in these pages will further stimulate the Kansas physician to exert his utmost influence to correct this sorry condition.

Kansas occupies an unique and enviable position in the history of public health, a glance through the Centennial Issue of the JOURNAL will attest to this, but the great Dr. Crumrine would read with sorrow the statistic in this survey.

The School Health Committee of which I am chairman urges each physician and county society to cooperate with the State Board of Health, the Kansas State Department of Public Instruction, your local School Health Council (if such a council does not

exist in your community we urge you to seek to form one) to correct this deplorable deficiency. It can only be done through an aroused and informed community interest.

CONRAD M. BARNES, M.D.

Freedom of the press is based on a principle which the whole world must practice if we are to have peace, and that is the principle of tolerance—of being able to stand criticism and of realizing that nobody has the infallible truth.—*Henry Cabot Lodge*

It is utopian to think that we can live free of all complexes. We are always finding old reactions re-appearing in us when we thought we had been freed from them. Living in grace is not the same as living in cotton wool.—*Paul Tournier*

Notice

The committee in charge of the scientific exhibits for the annual meeting of the Kansas Medical Society to be held in Wichita May 1-3, 1961, has made arrangements for the use of good exhibit space immediately adjacent to the meeting area. The Kansas Medical Society has made available \$200.00 to be used in cash prizes.

Because of the Kansas Centennial Exposition which will be in Wichita, there will probably be record breaking attendance at the meeting.

Exhibits in the scientific area will be limited to those of a scientific nature. Each member of the Kansas Medical Society is invited to prepare an exhibit. Other interested physicians may also present scientific exhibits, however, if space is a problem members will be given the first priority.

A form on which space may be requested will be mailed to each member of the Kansas Medical Society. Physicians, who are not members, who wish to reserve space should address inquiries to:

Charles M. White, M.D.
3244 East Douglas
Wichita, Kansas

The President's Message

DEAR DOCTOR:

As the first of May approaches and my term as President of the Kansas Medical Society is terminated, I would like to report that though there have been many problems, it has been a very rewarding experience.

It has been a challenging year, especially so with the legislature in session. These challenges could never have been brought to a successful conclusion without the help of the chairmen and the members of the many committees who have given so much of their time and energy.

I wish also to report without contradiction that the dynamo who correlates all of the material and makes the meetings of the committees possible and without whom the President of the Society could not successfully carry on the business of the Society, is Mr. Ebel. Oliver, I want to thank you, your able assistant Mr. James Imboden and your staff who have shown me many courtesies.

The Editor and the Editorial Board of our JOURNAL have performed an outstanding service to the Society for which we are all grateful. I also wish to particularly thank the executive committee and the council who have worked so faithfully in the interests of the Society.

It has been very encouraging. The interest shown by all members of the Society is certainly a step in the right direction and I hope, in the future, this will continue to make the Kansas Medical Society even better next year.



Yours very truly,

President

MAKE YOUR RESERVATIONS NOW

For the 102nd Annual Convention
Wichita, Kansas May 1-3, 1961

Some Facilities Available:

Allis Hotel
200 South Broadway

Broadview Hotel
101 North Waco

Eaton Hotel
523 East Douglas

Kersting Hotel
320 North Market

Lassen Hotel
First & Market

Lincoln Hotel
333 North Market

McClellan Hotel
229 East William

Renfro Hotel
612 East Douglas

Shirkmere Hotel
256 North Topeka

Municipal Forum
221 South Water

Auto Motel
1230 North Broadway

Casa Siesta Motel
4449 South Broadway

English Village Motor Lodge
6727 East Kellogg

Holiday Inn Hotel
7411 East Kellogg

Kellogg Motel
7307 East Kellogg

Leon Motel
4459 South Broadway

Sands Motel
8401 West Hyway 54

Schimmel Inn
8401 East Kellogg

Starlight Motor Lodge
6345 E. Kellogg

Town & Country Lodge
4702 West Kellogg

Town Manor Motel
1112 North Broadway

Uptown Motel
1421 North Broadway

Wheat State Motel
8410 East Kellogg

WELCOME TO WICHITA

Once again the Medical Society of Sedgwick County is pleased to serve as the Host Society for the 102nd Annual Meeting of the Kansas Medical Society. The entire meeting this year will be held in the Broadview Hotel so that members will not have to walk the distance to the Scientific Meetings and Exhibit Hall from their hotel accommodations. We hope in this way to have a better integrated program for your stay with us.

The program will present subjects both of general interest and also in the various fields of medicine so that all who attend will be able to gain new knowledge. The Program Committee has worked very hard to provide for you programs of interest. We hope that you will take an active part in not only the scientific sessions but also in the various other programs which have been planned.

In this Centennial year of Kansas Statehood, the Kansas Medical Society can look back with pride knowing that it is senior in years to the State which we serve. We can hope that through scientific achievement and sound medical organization we can look forward to an additional century of progress in the care of all those who come to us seeking aid.

William J. Reals, M. D.

President, Sedgwick County Medical Society

102nd Annual Session, Kansas Medical Society

Monday, May 1, through Wednesday, May 3, 1961

SCIENTIFIC SPEAKERS



ARDEN W. MOYER, Ph.D.
Park Ridge, New Jersey

Received a Ph.D. from Cornell University Medical College, 1942. Currently is head of Virus Biological Research Department at Lederle Laboratories; Member, American Chemical Society; New York Academy of Sciences, Harvey Society and the American Association of Immunology. Holder of a patent in the area of polio research.

Specialty: Biochemistry.

Graduate, University of Vienna, 1928. Pathologist-in-Chief, The Mount Sinai Hospital, and Professor of Pathology, Columbia University, New York, since 1957. Diplomate of American Board of Pathology since 1943; American Society of Clinical Pathologists; American Association of Pathologists and Bacteriologists; International Academy of Pathology; American Institute of Nutrition; past president of Chicago Pathological Society; American Gastroenterological Association; New York Pathological Society; International Association for the Study of the Liver.

Specialty: Pathology.



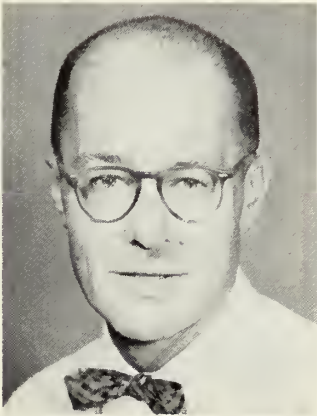
HANS POPPER, M.D.
New York, New York

Graduate, Johns Hopkins University, 1925; Assistant Professor of Clinical Surgery at Cornell Medical School, 1933-34; Associate Professor of Surgery at Cornell, 1937-41; Chief of Surgery at the 9th General Hospital, Lovell General Hospital and at Walter Reed General Hospital; Chief of the Surgical Service at Veterans Administration Medical Teaching Group Hospital, Memphis since 1947; Member, New York Academy of Medicine, Society of University Surgeons, and the American Surgical Association.

Specialty: Surgery.



RALPH F. BOWERS, M.D.
Memphis, Tennessee



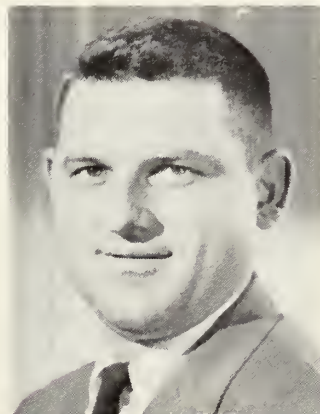
ERNEST JAWETZ, M.D.
San Francisco, California

Graduate, State University of New York at New York City, College of Medicine, 1949. Assistant Visiting Physician, Massachusetts Memorial Hospitals, 1956-1959; Associate Visiting Physician, Massachusetts Memorial Hospitals, 1959- ; Physician in Charge of Hypertension Clinic, Massachusetts Memorial Hospitals, 1959- ; American Federation for Clinical Research, 1954; Certified by American Board of Internal Medicine, 1957; Member of the Council of High Blood Pressure of American Heart Association, 1958.

Specialty: Internal Medicine.

Graduate, Stanford University, 1946. American Society for Clin. Investigation; Association of Immunologists; Western Society for Clin. Research, Western Association of Physicians; University of California School of Medicine, Professor of Microbiology and Lecturer in Medicine and Pediatrics, since 1948; Senior Assistant Surgeon, U. S. Public Health Service, National Institutes of Health, 1946-1948.

Specialty: Bacteriology.



WILLIAM HOLLANDER, M.D.
Sudbury, Massachusetts

Summaries of the Programs

May 1-3, 1961, Broadview Hotel

| | |
|---|----------|
| Hosts for the meetings | Page 173 |
| PROGRAM FOR MONDAY | Page 173 |
| House of Delegates Breakfast Meeting—7:30 a.m. | |
| Kansas Medical Golf and Skeet Shooting Association—1:00 p.m. | |
| Sports Banquet—7:00 p.m. | |
| PROGRAM FOR TUESDAY | |
| First General Session—9:00 a.m. | Page 174 |
| Scientific Program | |
| Speeches by: Ernest Jawetz, M.D. | |
| William Hollander, M.D. | |
| Ralph F. Bowers, M.D. | |
| Medical Motion Pictures | Page 181 |
| Second General Session—2:30 p.m. | Page 175 |
| Scientific Program | |
| Speeches by: Hans Popper, M.D. | |
| Ralph Bowers, M.D. | |
| Medical Motion Pictures | Page 181 |
| Program for Tuesday Evening | Page 175 |
| University of Kansas Medical School Alumni Reception—5:30 p.m. | |
| Annual Banquet—7:30 p.m. | |
| Introduction of Guests | |
| Oath of Office Incoming President | |
| Entertainment | |
| PROGRAM FOR WEDNESDAY | |
| Third General Session—9:30 a.m. | Page 176 |
| Scientific Program | |
| Speeches by: A. W. Moyer, Ph.D. | |
| Hans Popper, M.D. | |
| Ernest Jawetz, M.D. | |
| Medical Motion Pictures | Page 181 |
| House of Delegates Meeting—2:00 p.m. | |
| Specialty Group Meetings | Page 177 |
| <hr/> | |
| Kansas Society of Medical Technologists and Kansas Society of Pathologists | Page 178 |
| Kansas Medical Assistants Society | Page 179 |
| Woman's Auxiliary to the Kansas Medical Society | Page 180 |

Hosts for the Meeting

Wichita Physicians Arranging the 1961 Session

GENERAL CHAIRMAN—ROBERT K. PURVES, M.D.

ADVISORY AND PROGRAM COMMITTEE

Leo P. Cawley, M.D., Chairman

George J. Mastio, M.D.

Zane R. Boyd, M.D.

Charles L. Williams, M.D.

ARRANGEMENTS AND ENTERTAINMENT

G. B. Wood, M.D., Chairman

COMMERCIAL EXHIBITS

Jack G. Phipps, M.D., Chairman

SCIENTIFIC EXHIBITS

Charles M. White, M.D., Chairman

SCIENTIFIC FILM COMMITTEE

W. G. Cauble, M.D., Chairman

R. F. Holden, Jr., M.D.

H. L. Low, M.D.

SPORTS EVENTS

Ralph Hale, M.D., Chairman

Program for Monday, May 1, 1961

HOUSE OF DELEGATES

7:30 Breakfast and Meeting
Clan Room, Broadview Hotel

KANSAS MEDICAL GOLF AND SKEET SHOOTING ASSOCIATION

1:00 Golf—Crestview Country Club

2:00 Trap—Ark Valley Gun Club

3:00 Bait and Fly Casting—Crestview Country
Club

7:00 Sports Banquet—Crestview Country Club

EMERGENCY TELEPHONE NUMBER

BROADVIEW HOTEL FO3-6211

Program for Tuesday Morning, May 2, 1961

Clan Room, Broadview Hotel

FIRST GENERAL SESSION

James Crockett, M.D., *presiding*

9:00 VALUE OF LABORATORY STUDIES IN USE OF ANTIBIOTICS

Ernest Jawetz, M.D.

The initial decision of the physician to employ antimicrobial drugs must be based on his clinical impression that a bacterial infection exists together with a tentative impression as to the nature of the infecting bacterium. Laboratory tests (disc tests) cannot substitute for the clinical impression but they may be a valuable aid. Regrettably these tests must be correctly performed and interpreted or else they will yield misleading information. At times it is necessary to determine not only inhibitory effects of antimicrobial drugs (as given in the disc test) but one must also determine bactericidal effects of single drugs or combinations in order to obtain cure.

9:30 CLINICAL ASPECTS OF HYPERTENSION

William Hollander, M.D.

The diagnosis of this condition is no longer merely of academic interest since it can be treated effectively with drugs or surgery. Some types of hypertension may even be curable. Early accurate diagnosis and treatment are necessary and the complications of hypertension ought to be prevented.

9:55 BREAK FOR COMMERCIAL AND SCIENTIFIC EXHIBITS

10:15 SURGICAL TREATMENT OF HYPERTENSION

Ralph F. Bowers, M.D.

The role of surgery has changed in the treatment of hypertension. Attention is now directed toward tumors of the adrenal gland, the small contracted kidney, and constriction of the renal artery. The formal operations, namely sympathectomy and bilateral adrenalectomy have little place in treatment today.

10:40 QUESTION AND ANSWER PERIOD ON HYPERTENSION

Drs. Hollander and Bowers

10:55 BREAK FOR EXHIBITS

11:15 THE ANTIBIOTIC JUNGLE

Ernest Jawetz, M.D.

The physician is being pressurized into greater drug consumption by printed advertising in medical journals, by direct mail, by sales representatives, and even by the patients' demands. Suggestions to bring order out of the confusion.

11:45 PANEL ON USES OF ANTIBIOTICS

Drs. Jawetz, Bowers, Hollander

12:45 LUNCHEON—NORTH BALL ROOM—with question and answer period on antibiotics and hypertension

Dr. Crockett, moderator

EMERGENCY TELEPHONE NUMBER

BROADVIEW HOTEL FO3-6211

Program for Tuesday Afternoon, May 2, 1961

Clan Room, Broadview Hotel

SECOND GENERAL SESSION

Mahlon Delp, M.D., *presiding*

3:25 BREAK FOR EXHIBITS

2:30 LABORATORY INVESTIGATION AND DIFFERENTIAL DIAGNOSIS OF JAUNDICE

Hans Popper, M.D.

A discussion of the different and newer modern procedures which have been used in differential diagnosis. References to the newer immunologic techniques used as well as the modern enzyme techniques.

3:00 SURGICAL TREATMENT OF EXTRAHEPATIC OBSTRUCTIVE JAUNDICE

Ralph Bowers, M.D.

Discussion of the causes of the jaundice and the methods of diagnosis and treatment, dealing mainly with common duct obstruction due to stones, carcinoma of the pancreas, pancreatitis, carcinoma of the ampulla of Vater, and benign strictures of the common duct.

3:45 PATHOGENESIS OF LIVER DISEASE WITH JAUNDICE

Hans Popper, M.D.

Discussion of the diseases associated with jaundice which will indicate both obstructive jaundice, non-obstructive jaundice and cirrhosis.

4:15 PANEL ON JAUNDICE

Drs. Popper, Bowers, Hollander

Program for Tuesday Evening, May 2, 1961

Lassen Hotel Grand Ballroom

5:30 UNIVERSITY OF KANSAS MEDICAL SCHOOL ALUMNI RECEPTION

Assembly Room

7:30 ANNUAL BANQUET, KANSAS MEDICAL SOCIETY

Grand Ballroom

Introduction of Guests
Oath of Office Incoming President

Entertainment by The Boeing Stratosingers under the direction of C. W. Harper. A mixed chorus presentation of fifty-five voices presenting old favorites, classics and modern songs.

Dancing to the music of the Klaus-Kollmai Combo

EMERGENCY TELEPHONE NUMBER

BROADVIEW HOTEL FO3-6211

Program for Wednesday, May 3, 1961

Clan Room, Broadview Hotel

THIRD GENERAL SESSION

Robert Weber, M.D., *presiding*

10:25 BREAK FOR EXHIBITS

9:30 CURRENT STATUS OF VIRAL RESEARCH

A. W. Moyer, Ph.D.

The discussion will be about current problems of prophylaxis against virus diseases by the use of vaccine. This will include existing vaccines and virus diseases for which there is no vaccine.

10:45 RELATIONSHIP OF VIRAL AGENTS AND TUMORS

A. W. Moyer, Ph.D.

A review of some of the evidence which indicates that viruses are the causes of tumors, and consideration of the problems which exist in trying to prove that that is so.

10:00 VIRAL HEPATITIS

Hans Popper, M.D.

A discussion of the pathologic features and the various types of viral hepatitis.

11:15 DIAGNOSIS AND TREATMENT OF VIRAL DISEASES

Ernest Jawetz, M.D.

12:00 LUNCHEON—NORTH BALL ROOM—Panel discussion on viral disease—question and answer period.

Drs. Moyer, Popper, Jawetz, Dr. Weber, moderator

SPECIALTY GROUP MEETINGS

Page 177

2:00 HOUSE OF DELEGATES MEETING—Clan Room

EMERGENCY TELEPHONE NUMBER

BROADVIEW HOTEL FO3-6211

Specialty Group Meetings

Wednesday, May 3, 1961, Broadview Hotel

KANSAS OBSTRETICAL SOCIETY

Henry M. Foster, M.D., Hays, President

KANSAS PEDIATRIC SOCIETY

Thomas C. Hurst, M.D., Wichita, President

2:00 THE CHILD, THE DOCTOR, THE BUG AND THE DRUG

Ernest Jawetz, M.D.

3:00 COFFEE BREAK

3:15 VIRUS LAND RE-VISITED

Ernest Jawetz, M.D.

4:15 QUESTION AND ANSWER PERIOD; AND ANNOUNCEMENTS

4:30 COCKTAIL HOUR

KANSAS SOCIETY OF ANESTHESIOLOGISTS

Ray T. Parmley, M.D., Wichita, President

2:30 BUSINESS MEETING

KANSAS RADIOLOGICAL SOCIETY

Lewis G. Allen, M.D., Kansas City, President

12:30 LUNCHEON, BUSINESS MEETING

EYE, EAR, NOSE AND THROAT SECTION, KANSAS MEDICAL SOCIETY

Joseph A. Budetti, M.D., Wichita, President

2:00 BUSINESS MEETING

THE KANSAS CHAPTER OF THE AMERICAN COLLEGE OF CHEST PHYSICIANS

Benjamin Matassarini, M.D., Wichita, President

1:30 SURGICAL LESIONS OF THE ESOPHAGUS

Robert G. Rate, Halstead

CARCINOMA OF THE LUNG

Robert M. Brooker, M.D., Topeka

ANOMALOUS LUNG (FILM)

Calvin R. Openshaw, M.D., Hutchinson

PULMONARY ARTERY BANDING, ITS APPLICATION IN CONGENITAL HEART DISEASE

C. Frederick Kittle, M.D., Kansas City

PITFALLS OF CARDIAC SURGERY

Ben H. Buck, M.D., Wichita

LEFT SIDED CARDIAC DIAGNOSTIC TECHNIQUES

R. L. Sifford, Wichita

PANEL DISCUSSION—CHEMOTHERAPY OF INOPERABLE PULMONARY MALIGNANCY

John K. Fulton, M.D., Wichita
William E. Larsen, M.D., Kansas City
John G. Shellito, M.D., Wichita

CONGENITAL LOBAR EMPHYSEMA IN INFANTS

Paul J. Uhlig, M.D., Wichita

X-Ray Conference

5:00 SOCIAL HOUR

EMERGENCY TELEPHONE NUMBER BROADVIEW HOTEL FO3-6211

Kansas Society of Pathologists

Kansas Society of Medical Technologists

A Joint Scientific Meeting, May 2, 3, 1961

Hotel Lassen

Tuesday, May 2

- 8:00-9:00 REGISTRATION AND COFFEE
WEST MEZZANINE
SCIENTIFIC ASSEMBLY—COLONIAL ROOM
Ada Silor, M.T. (ASCP), *presiding*
9:00 GREETINGS
*Gwendolyn Haegert, M.T. (ASCP),
President, KSMT*
Russel J. Eilers, M.D., President, KSP
9:30 THE USE OF WHOLE BLOOD SILICONIZED
CLOTTING TIME IN FOLLOWING PA-
TIENTS ON COUMARIN THERAPY
John R. Carter, M.D., Kansas City
10:00 STATISTICAL ANALYSIS OF ULTRAMICRO
CHEMICAL PROCEDURES
*Virginia Cook, A.B., M.T. (ASCP),
Wichita*
10:30 COFFEE BREAK
10:45 PANEL ON "ENDOCRINOLOGY"
Richard J. Taylor, M.D., moderator
Richard Straw, Ph.D.
Harvey A. Tretbar, M.D.
Bill Musser, A.B., C. (ASCP)
Leo P. Cawley, M.D.
12:00 SPECIAL INTERESTS LUNCHEON
AFTERNOON SESSION—ASSEMBLY ROOM
Howard M. Edgar, M.T. (ASCP), *presiding*
1:45 CURRENT STATUS OF VIRAL RESEARCH
A. W. Moyer, Ph.D., New York
2:15 APPLICATION OF FLUORESCENT CYTOLOGY
TO CANCER DETECTION
*DeWitt Talmage Hunter, Jr., M.D.,
Oklahoma City*
2:45 MODIFICATIONS OF THE TRIIODOTHYRONINE
(T-C) PROCEDURE
*John Bort, M.T. (ASCP),
Oklahoma City*
3:15 COFFEE BREAK
3:30 INTER-SOCIETY OFFICERS MEETING
COLONIAL ROOM
Exhibits of the Kansas Medical Society
Hotel Broadview
6:00 SOCIAL HOUR—COLONIAL ROOM
7:00 BANQUET—WALNUT ROOM

Wednesday, May 3

- 8:00 REGISTRATION—WEST MEZZANINE
SCIENTIFIC ASSEMBLY—COLONIAL ROOM
Helen Health, M.T. (ASCP), presiding
9:00 TO TEST OR NOT TO TEST
Ernest Jawetz, M.D., San Francisco
9:30 AN EVALUATION OF THE UROGRAPH METH-
OD FOR DETERMINING BLOOD UREA
NITROGEN
Harold Grady, Ph.D., Kansas City
10:00 COFFEE BREAK
10:15 BUSINESS MEETINGS
Kansas Society of Medical Technolo-
gists—Colonial Room
Kansas Society of Pathologists—Frontier
Room
12:45 LUNCHEON
AFTERNOON SESSION
Doris Haun, M.T. (ASCP), presiding
2:30 MODERN LABORATORY PROCEDURES IN THE
MANAGEMENT OF LIVER DISEASE
Hans Popper, M.D., New York
3:00 CHALLENGE OR DEFEAT
Russell J. Eilers, M.D., Kansas City
3:30 ADJOURNMENT

Kansas Medical Assistants Society

April 29–May 1, 1961, Allis Hotel

Saturday Evening, April 29

6:00 REGISTRATION

8:00 MEETING OF PAST PRESIDENTS—SOCIAL
HOURS

Sunday, April 30

8:00 REGISTRATION AND COFFEE
Meeting of Executive Board

10:00 CALL TO ORDER OF GENERAL ASSEMBLY

*Marge Slaymaker, President,
Kansas Medical Assistants Society*

10:05 INVOCATION

10:15 WELCOME

*William J. Reals, M.D., President of
Sedgwick County Medical Society*

10:25 RESPONSE

F. E. Wrightman, M.D., President, KMS

10:35 BUSINESS SESSION

12:00 PRESIDENTS' LUNCHEON

1:30 BUSINESS SESSION RECONVENES

2:30 OLD DOCTORS AND MEDICINES

R. E. Speirs, M.D., Dodge City

3:30 NEWER DIAGNOSTIC PROCEDURES IN CARDI-
OLOGY

Ernest Crow, M.D., Wichita

7:00 BANQUET

Monday, May 1

8:00 REGISTRATION

9:00 MEETING CALLED TO ORDER AND AN-
NOUNCEMENTS

*Marge Slaymaker, President,
Kansas Medical Assistants Society*

9:15 GREETINGS

*Margaret Johnstone, President,
Sedgwick County Medical
Assistants Society*

9:30 EFFECTS OF THE INTERRUPTED COMMUNI-
CATIVE CYCLE

*Robert Achilles,
Director of Clinical Services,
Institute of Logopedics, Wichita*

10:30 NARCOTICS

*Detective Harlan Groves,
Wichita Police Department*

12:00 LUNCHEON

FINDING THE WAY TO THE POST OFFICE

*Cliff Titus, Supervisor of Management
Development and Community Relations,
Beech Aircraft Corporation, Wichita*

INSTALLATION OF OFFICERS

Woman's Auxiliary to the Kansas Medical Society

May 1, 2, 3, 1961

Monday, May 1

9:00-4:00 REGISTRATION, Hotel Lassen, Mezzanine, 155 N. Market

11:45 PAST STATE PRESIDENTS' LUNCHEON, Innes Tea Room-Club Room

2:00-4:00 PRE-CONVENTION BOARD OF DIRECTORS MEETING—Welcome Room, Union National Bank Center

5:30-9:30 SOCIAL HOUR-BUFFET SUPPER, Prairie Club of Wichita, K.F.H. Bldg., Williams at Market. Entertainment by Joan Bayles with her Guitar sings Folk Ballads.

Tuesday, May 2

9:00-4:00 REGISTRATION, Hotel Lassen, Mezzanine, 155 N. Market and K. G. & E. Hospitality Room, 201 N. Market

8:45-12:00 GENERAL SESSION, K. G. & E. Hospitality Room

1:15 LUNCHEON, Petroleum Club of Wichita, 158 N. Market

3:00-5:00 POST CONVENTION BOARD OF DIRECTORS MEETING, Welcome Room, Union National Bank Center

7:00 ANNUAL KANSAS MEDICAL SOCIETY BANQUET, Broadview Hotel, Ballroom

Wednesday, May 3

10:00 BRUNCH, Innes Colonial Room, Innes Tea Room. Style Show—presented by Innes

EMERGENCY TELEPHONE NUMBER

BROADVIEW HOTEL FO3-6211

Film Committee

Medical Motion Pictures Program

Tuesday, May 2, 1961

- 8:30 BREECH DELIVERY—18 MINUTES
*Prepared by Professor Bruce Mayes,
University of Sydney, Sydney, Aus-
tralia*
- 8:55 LOW CERVICAL CESAREAN SECTION—20
MINUTES
*Prepared by Robert B. Wilson, M.D.,
Rochester, Minnesota*
- 9:20 ENDOMETRIOSIS—31 MINUTES
*Prepared by Edward D. Allen, M.D.,
Chicago*
- 9:50 15 MINUTE INTERMISSION
- 10:05 INGUINAL HERNIA AND HYDROCELE,
INFANTS AND CHILDREN—18 MINUTES
*The Children's Memorial Hospital, Chi-
cago*
- 10:30 PULL-THRU RESECTION FOR CONGENITAL
MEGACOLON—10 MINUTES
*By George A. Olander, M.D., Highland
Park*
- 10:45 CHOLECYSTECTOMY—28 MINUTES
By Richard B. Cattell, M.D., Boston
- 11:20 REPAIR OF THE SEVERED TENDON AND
NERVE—16 MINUTES
By John H. Schneewind, M.D., Chicago
- 2:30 CYSTIC FIBROSIS—29 MINUTES
By University of California
- 3:05 DISORDERS OF THE HEART BEAT—21 MIN-
UTES
*By American Heart Association and
Affiliates, New York*
- 3:30 REHABILITATION ADDS LIFE TO YEARS—30
MINUTES
*Produced for the American Medical As-
sociation committee on Rehabilitation*

Wednesday, May 3, 1961

- 8:30 SURGICAL TREATMENT OF VARICOSE VEINS
—25 MINUTES
By Geza de Takats, M.D., Chicago
- 9:05 THE MEDICAL WITNESS—34 MINUTES
*Produced for the Wm. S. Merrell Co.,
the American Bar Association and
the American Medical Association*
- 9:45 PHYSICAL EXAMINATION OF THE NEWBORN
—33 MINUTES
By Mary Olney, San Francisco
- 10:20 20 MINUTE INTERMISSION
- 10:40 GLAUCOMA: WHAT THE GENERAL PRACTI-
TIONER SHOULD KNOW—22 MINUTES
*Prepared by National Society for the
Prevention of Blindness*
- 11:05 FUNCTIONAL ANATOMY OF THE HAND—28
MINUTES
*Prepared by the Department of Anat-
omy, Duke University, Durham, N. C.*

EMERGENCY TELEPHONE NUMBER BROADVIEW HOTEL FO3-6211

President and President-Elect

The Major Officers of the Kansas Medical Society

F. E. WRIGHTMAN, M.D., *President*

Dr. F. E. Wrightman will, at this 102nd Annual Session, complete a year as President of the Kansas Medical Society. The year has been one of devotion to the affairs of his Society and the many duties which fall to the lot of our president have been performed with efficiency.

Many of our members do not realize the sacrifice which is required of the chief executive officer of the Society these days, but it does actually require absence from his work and home for a considerable number of days. Attendance at committee and council meetings, conferences with our members and with other groups, our growing legislative activities, and being our representative at various regional or national meetings all take an increasing amount of time. These things have been done in spite of the interruption of a serious illness, from which Dr. Wrightman has fortunately recovered.

For a year of devoted and self-sacrificing service, the Society is deeply grateful, and extends to Dr. Wrightman its best wishes for the future years. He deservedly joins the long list of physicians who have served with distinction as President of the Kansas Medical Society.



HAROLD M. GLOVER, M.D., *President-Elect*

Harold M. Glover will, during the approaching Annual Session, become our President. For a goodly number of years he has been an actively practicing surgeon in Newton, where he has established a reputation for ability, sincerity and integrity. He has always been an interested—an actively interested—member of the Society, and of other organizations to which he belongs. He has served on the council, and for the last three years as an officer of the Society, situations which have oriented him well for the tasks which lie ahead.

We are confident of our leadership for the coming year, and are looking forward, with an assurance that our present problems can be resolved, and new beneficial programs be initiated. We welcome you, Dr. Glover, to the family of Presidents of the Kansas Medical Society.



Councilor Reports

Activities in the Councilor Districts of Kansas

FIRST DISTRICT

The activities of the physicians in District 1 have been steady, progressive and productive. We thought the group showed good constructive work in the campaign prior to last Fall's elections.

A district wide meeting was held in Sabetha last November. It was well attended by our physicians and the ladies in the Auxiliary.

To our knowledge, there are no serious problems at present.

EMERSON YODER, M.D., *Councilor*

SECOND DISTRICT

District 2 is composed only of Wyandotte County. No major problems have been brought to the attention of the Councilor during this year. The Wyandotte County Medical Society has made some changes in its constitution for the betterment of the Society. Plans are under way for the 1962 meeting of the Kansas Medical Society to be held in Kansas City, and we are sure an interesting program will be formulated.

J. WARREN MANLEY, M.D., *Councilor*

THIRD DISTRICT

During the past six months each component medical society has been visited at one of their regular meetings. No particular problems have been noted in the past year.

One suggestion from the Johnson County Society was made to produce more stringent regulation of the automobile drivers license examination. This suggestion was sent to the Committee on Safety, who found that similar action was already being taken on the legislative level, so no action was taken.

This has been a fairly quiet year in this district.

GEORGE R. MASER, M.D., *Councilor*

FOURTH DISTRICT

During this centennial year no unusual problems have arisen for the Fourth District. The Southeast Kansas Medical Society has met quarterly with the component societies. The meetings have been well attended and the programs have been timely and informative. Labette County is looking forward to the

opening of a new sixty-eight bed hospital on September the first, of this year. The hospital will be known as the Labette County Medical Center Hospital and will replace the present Mercy Hospital which will be inactivated.

With the changes in national and state leadership everyone is pondering the question: "What can we expect in the future in medicine?" It is becoming very apparent that every physician must work and fight continuously or have more socialized medicine crammed down his throat. Kansas medicine needs new and younger blood to take over and carry on the fight. The old guard is becoming tired and frustrated.

The problem of Welfare care is still with us. The plan that was adopted in Crawford County in 1939 has worked out to a moderate degree of satisfaction for the physicians concerned. The members of the Crawford County Medical Society were gratified over the continued accreditation of Mount Carmel Hospital. This was largely due to the efforts of the administrative office and the department of nursing. The members of the Auxiliary are doing their usual good work to help their doctors and to promote good public relations. Particular emphasis has been put on raising money for A.M.E.F. I have enjoyed serving as councilor this year and am grateful for the co-operation I have received.

D. B. MCKEE, M.D., *Councilor*

FIFTH DISTRICT

The County Societies in the Fifth District presented no problems or request for action on the part of their councilor during the past year.

Attendance of delegates from the County Societies at the special meeting of the House of Delegates was good. Attendance and interest at postgraduate circuit courses by members of this district has been excellent. In the Manhattan area the opening of the splendid new Saint Mary Hospital with its one hundred beds is planned for April. The new Wharton Manor, an exceptional facility for care of the aged with seventy-eight beds, in conjunction with the Riley County Hospital, will be opened in June.

The majority of the members of the Fifth District have expressed concern over the Forand type proposal for care of the aged, and many of our members have urged their legislators to give the Kerr-Mills law an opportunity to prove what it can accomplish.

RALPH G. BALL, M.D., *Councilor*

SIXTH DISTRICT

Our membership gained considerably during 1960 and at the end of the year there were 177 active members, 1 affiliate, 5 associates, 9 emeritus, 3 fellowships and 12 resident members. This is a net gain of 16 over 1959. Death claimed 3 of our members: Drs. Ralph Funk, Leo Turgeon, and W. L. Warriner. Special mention should be made of Dr. Warriner who died at the age of 97 and was a charter member of the Shawnee County Medical Society. He was in active practice until a few months before his death which occurred in April, 1960.

Members recognized the continued needs of the American Medical Education Foundation and again assessed themselves \$15.00 per year for support of the Foundation. Along these same lines members believed that the Science Fair is doing much to stimulate interest in both science and medicine and continued their support by a \$5.00 assessment per each member for this purpose.

The committees function well in their prescribed fields but special mention should be made of the Rural Health Committee which has now been working for five years with the Extension Council seeking to improve health information to the members of this group. In October, 1960, an open meeting was held for members of the Extension Council and the general public at which time a panel of physicians and dentists discussed the need for care of the teeth for better nutrition which several hundred women attended. This same committee held a series of clinics in the various parts of the county for tetanus and polio vaccinations. The first two series were given in April and May and were concluded in January, 1961.

The Society again sponsored a delegate to Boys State at Wichita as a public service.

The usual number of regular scientific programs were held which included both medical and legal subjects; also a joint meeting was held with the Golden Belt Medical Society in October.

JAMES A. McCLURE, M.D., *Councilor*

SEVENTH DISTRICT

The Seventh District has faced no unusual problems this past year and, as before, the relationship between the component county groups and the individual physicians has been characterized by an exemplary friendliness.

There has been good attendance at the Postgraduate Courses held in Emporia.

There is a tentative plan to unite several of the counties into a common organization and no doubt this will be accomplished within the next year.

Emporia was proud to be host to the House of Delegates meeting on Sunday, February 12.

If we have a problem, it consists of the fact that nearly all of our meetings are devoted entirely to business matters rather than scientific presentations, yet these business problems are important and I see no lessening of the time allotted to them in the future.

We are concerned about the present lack of legislation in Kansas to comply with the Kerr-Mills Bill.

It is a pleasure to be a Councilor for the Seventh District.

JOHN L. MORGAN, M.D., *Councilor*

EIGHTH DISTRICT

The component medical societies of the Eighth District have reported no major problems or requests to their councilor during the last year.

The past year has seen society meetings in Butler and Cowley Counties well attended with very interesting and instructive programs. The interest of the members in these counties in postgraduate work, both at the Medical Center and the Circuit Courses has been excellent.

The interprofessional Relations with the allied professions has been very harmonious and meetings are planned for the coming year.

A new full service contract for Butler County has been in the making for the last few months with the full cooperation of the Blue Shield Board of Directors. This is being initiated to provide better prepaid medical benefits to the people of Butler County, through the voluntary prepaid approach.

This Councilor has enjoyed his participation in state level medicine by attending all the meetings of the council. I wish to thank all the members of the Eighth District for their interest in furthering the interests of Kansas Medicine.

J. GORDON CLAYPOOL, M.D., *Councilor*

NINTH DISTRICT

There have been no serious problems in the Ninth District.

I have attended all the council meetings and the special House of Delegates Meeting in Emporia.

We are working closely with the Saline County Medical Society in formulating plans for holding the State Medical Society meeting in Salina in 1963.

JOHN C. MITCHELL, M.D., *Councilor*

TENTH DISTRICT

This has been a quiet year in the Tenth District. I have attended all council meetings and hear too much about the Forand Bill. I am sorry, but to date all

measures by our society have been one of defense against implications of this bill. Indigent care only appears to grow and it is to be hoped in our District it will remain largely a social welfare headache.

The past year has seen society meetings well attended with interesting and instructive programs.

Considerable thought has been given to the consideration of problems associated with the care of elderly individuals and the political implications of such legislation before Congress.

Attendance at Circuit Courses and other Post-graduate Courses has been good. The changes of format for these meetings has been very well accepted.

During the past year the Medical Auxiliaries have devoted most of their attention to public relations and safety problems at the public school level. Professional relationships in this District has always been good. It has been a real pleasure to be a Councilor for the great Tenth District.

May we see you all at the State Meeting.

JOHN N. BLANK, M.D., *Councilor*

ELEVENTH DISTRICT

The Councilor wishes to report from the Eleventh District that our area has had a very successful year. As in the past, the scientific programs presented by the Medical Society of Sedgwick County have been very excellent with outstanding speakers appearing before our group. The Program Committee of our Sedgwick County Society has brought in interesting and able speakers of National renown from various areas of the country. The Program Committee and their chairman are to be congratulated upon the high type of program which has been given for the education and advancement of our membership.

The Sedgwick County Medical Society is again sponsoring the Science Fair together with the Wichita University. Last year's Fair was very successful and the Fair which will be held very shortly, at this writing, promises to be even larger than those in the past.

Our Annual Business-Education Day also will be held again in 1961. By this means the County Medical Society sponsors a portion of the teachers from the school system of the city who visit doctors' offices and also visit the various hospitals in the community.

The Annual Midwest Cancer Conference will again be held in Wichita with a group of outstanding scientific speakers. This meeting has become one of the favorite medical meetings of the Midwest and we are pleased to see that attendance has increased from year to year. We sincerely hope that our colleagues will continue to support and attend this very worthwhile and excellent meeting held in our city.

The Annual Meeting of the Kansas Medical So-

ciety will be hosted this year by Wichita. The Program Committee has prepared an excellent series of speakers and presentations for our membership. The doctors of Sedgwick County and of this Councilor District are most pleased that they are to be the host city and extend to all of our colleagues in the state a cordial invitation to share with us this forthcoming medical meeting.

The Medical Auxiliary to the Medical Society of Sedgwick County has had a highly successful year with well-attended meetings. We were honored in February 1961 to meet jointly with them to hear a presentation on the future of the practice of medicine by Dr. Louis Orr, Immediate Past-President of the American Medical Association. This was one of the largest meetings ever held in Sedgwick County sponsored by these two groups. We wish to thank the ladies for their efforts in the behalf of organized medicine.

We would also like to thank the doctors who continue to aid this Medical Society in presenting informational material on medicine as a career to the various high schools on Career Day.

This Councilor also wishes to express his gratitude to all who have cooperated so fully with him during the past year.

WILLIAM J. REALS, M.D., *Councilor*

TWELFTH DISTRICT

The component societies of this district have had no special problems. There was 100 per cent participation in giving to A.M.E.F.

Interest in the activities of medical societies at all levels seems to be increasing and it is hoped this will continue so as to strengthen our position as a group.

ALBERT C. HATCHER, M.D., *Councilor*

THIRTEENTH DISTRICT

A great deal of interest was indicated in the Hospital Costs and Charges under the Blue Cross and one excellent meeting was held for this discussion with representatives of all branches.

There have been a few additions to membership but no unusual experiences during the year.

The Councilorship has recently been assumed by Dr. A. M. Cherner of Hays, Kansas.

H. ST. CLAIR O'DONNELL, M.D. *Councilor*

FOURTEENTH DISTRICT

The past twelve months has seen no unusual problems or other developments arise in this area. The practice of medicine has been relatively smooth with the exception of the threat of several malpractice

suits, none of which has come to trial as of this time.

C. J. CAVANAUGH, M.D., *Councilor*

FIFTEENTH DISTRICT

As the winter season fades into spring—we are brought to the sudden realization that the annual gathering of the Kansas Medical Society is rapidly approaching. The membership of the local area—the 15th Council District, has remained very stable, as usual. Happily, we have rolled along through another year with very few problems worthy of mention. Most of these are very local and within factions and local Medical Society County units and are well resolved as we go to press.

We have gained a few doctors in the area involved—which consists of Seward, Meade, Clark, and Comanche Counties on the Southern border of Kansas and Gray, Ford and Kiowa Counties in the next row North. Our loss in doctors has been in the G.P. category and has been mostly well taken care of by replacements. We have some indication that one doctor who has been on leave over a year—taking P.G. work—may return to his home and old practice and we are all anxious for this event to materialize. Our net gain is mostly in new doctors in special fields of practice, for which we are grateful and the whole territory stands to benefit from this.

There has been much discussion concerning the ruling that came out of the House of Delegates last year, requiring membership in A.M.A., to belong to the local county and state medical society. No one objected to the older ruling that local and State Medical Society membership be required before membership in A.M.A. This is a rather logical sequence it seems. The latest ruling seemed to point up to much compulsory tendency and reminded us of labor union methods, closed shops, and threatens our freedom of decision. I am sure this ruling is doomed.

Our Iroquois Medical Society (4 counties) has voted solid against inclusion in the Social Security program. I have not polled Ford and Seward Societies on this but feel confident they would also vote against it, if they have not already.

The general business outlook is average or better—if some sudden drastic change in the Farm Policy and Program is not introduced. Collections are reported to be a bit slow and money tightening up in this new year but that seems about in line with the general situation, business-wise. We are looking forward to some timely general improvement in the near future, as the new wheat crop develops.

I have had no complaints from the membership that involve State level aside from the above mentioned A.M.A. membership problem. This was passed too quickly and with insufficient consideration appar-

ently. I am sure we will all hear more about that at the annual meeting.

L. G. GLENN, M.D., *Councilor*

SIXTEENTH DISTRICT

The Northwest Kansas Medical Society has remained fairly constant at a membership of 43. There are several members still serving probationary time before final approval. We have passed a rule requiring six months probationary practice, after membership application approval by the committee, before final approval can be given by members.

A fee schedule has been drawn up for the Northwest Kansas area, to acquaint new physicians with the average fees in this region. It is still in the fluid stage, and we hope eventually to have a more equitable and stable cost of medical care throughout our Northwest Kansas area. Copies of this fee schedule may be obtained from Dr. George Marshall at Colby, Kansas.

Our postgraduate attendance has averaged about 70 per cent of our membership at each meeting. I congratulate our members in their zest for medical knowledge, and the cocktail hour, and hold them up as a goal for other county societies to meet.

A banquet was given at Colby, March 5, for Dr. Arden Miller and his wife; to acquaint him with the medical needs of our district, and the interest and cooperation of our members in our medical school programs. We also enjoy the interest shown by new blood on the faculty as displayed by Dr. Krenz of the obstetrics department.

E. F. STEICHEN, M.D., *Councilor*

SEVENTEENTH DISTRICT

The 17th Councilor District, comprising twelve southwest Kansas counties has acquired two new doctors in the past year.

There has been increased hospital facilities in Lakin, Ulysses and during the past year St. Catherine Hospital in Garden City has opened a new wing and business office and completely remodeled the rest of the hospital with improved facilities in surgery, x-ray and laboratory. The circuit courses have been held in the new hospital with much favorable comment.

Other purposed medical facilities include a new, private, forty-eight bed modern center for the care of the aged and chronically ill.

The doctors in the district have been urged to become more active in explaining to their patients the political implications of new legislation and to express their views to their congressmen. Most of the doctors have realized the need to show more interest in the political situation.

JOHN O. AUSTIN, M.D., *Councilor*

Committee Reports

Activities of the Committees of the Kansas Medical Society

ANESTHESIOLOGY

Wray Enders, Kansas City, Chairman; H. J. Brown, Winfield; E. L. Frederickson, Kansas City; M. Robert Knapp, Wichita; R. S. McKee, Leavenworth; W. O. Martin, Topeka; A. W. Mee, Wichita; W. F. Powers, Wichita; L. J. Ruzicka, Concordia; H. F. Spencer, Emporia; J. R. Sumner, Hutchinson; E. T. Wulff, Atchison; H. M. Glover, Newton.

The Committee met in Topeka, October 16, 1960. Seven members attended. Also present were Dr. Patricia Schlosser of the Kansas State Board of Health and Mr. James S. Imboden of the Executive Staff of the Kansas Medical Society.

The matter of a placement service for specialty groups was considered and discussion favored such a program, though no definite action was taken.

Dr. Schlosser related to the Committee the experiences of the Maternal Welfare Committee in establishing the Maternal Death Study Program and suggested a similar plan might be utilized in a study devoted to the study of Anesthetic Mortality.

The Committee selected a subcommittee of three to prepare a questionnaire to obtain information from the attending surgeon in each of the five deaths associated with anesthesia which had been noted in the past eight months by the Department of Vital Statistics of the State Board of Health. They gave instructions that the questionnaire should be mailed to the five surgeons involved in order that they might voluntarily fill them out and return them for study.

Need for an immunization law with regard to mortality study was discussed and Dr. Schlosser reported that such a law has been prepared following study of similar laws in other states and that this law would be presented to the legislature in the coming session. Dr. E. L. Frederickson recommended that we also request the addition of the following: Feasibility of including reports of all recognized hospital committees and sections being considered immune from legal action, on basis of research and/or education.

WRAY ENDERS, M.D., *Chairman*

AUXILIARY

C. O. West, Kansas City, Chairman; H. L. Barry, Wichita; C. V. Black, Pratt; W. T. Braun, Pittsburg; V. E. Brown, Sabetha; J. G. Claypool, Howard; L. G. Glenn, Protection; L. G. Graves, St. John; E. M. Harms, Wichita; B. A. Nelson, Manhattan; R. E. Pfuetze, To-

peka; H. A. Tretbar, Wichita; C. L. Young, Kansas City; H. M. Glover, Newton.

The Woman's Auxiliary to the Kansas Medical Society has received high praise from their National President for their splendid work during the year. They have had a very energetic, enthusiastic and hard working president in the person of Mrs. Chester L. Young. She has visited every Auxiliary throughout the state during the year. Her leadership has given great inspiration to all; her presidency will long be remembered.

The Auxiliary membership has been very active during the past year in promoting and furthering legislation in regard to the Kerr-Mill Bill. The membership has also been active in politics at all levels; in the last election their influence was felt in many communities. They have been active in furthering Allied Careers by means of scholarships and grants during the year. Their activity for the AMEF has been outstanding during the year. The Auxiliary has had an active program in school and health legislation and in helping the Kansas Action for Education Council. The committee chairman on Organization has greatly increased the membership at large during the year. Likewise the work of the chairman of Health and Careers has been most helpful and the chairman for Safety and Rehabilitation has done an outstanding job. Public Relations is still the big job of the Auxiliary, and they continue to do a very outstanding job through community service.

Recommendations: The Kansas Medical Society Committee on Auxiliary recommends that the Auxiliary be permitted one or more pages in the State JOURNAL for information and news to the membership.

It is also recommended that the Kansas Medical Society Committee on Auxiliary be limited to three or five members. The Committee would be more readily polled for the decisions required of them.

C. OMER WEST, M.D., *Chairman*

BLUE SHIELD RELATIONS

O. R. Cram, Larned, Chairman; P. L. Beiderwell, Belleville; F. J. Bice, Wakeeney; C. W. Bowen, Topeka; R. E. Capsey, Centralia; C. W. Erickson, Pittsburg; G. W. Fields, Scott City; A. C. Hatcher, Wellington; P. E. Hiebert, Kansas City; H. P. Jones, Lawrence; W. R. Lentz, Seneca; J. R. Neuenschwander, Hoxie; H. R. Schmidt, Newton; B. G. Smith, Arkansas

City; R. K. Wallace, Manhattan; E. R. Williams, Dodge City; J. L. Lattimore, Topeka; K. L. Lohmeyer, Emporia.

The State Blue Shield Physicians Relations Committee met October 30, 1960 in Hutchinson, and since that time meetings have been held by the District Committees in each of the Councilor Districts. The State Committee is made up of the Councilor District Chairmen.

At the meeting of the State Committee approval was given to the television program being sponsored by the Blue Plans of which three have now been shown. Many favorable comments have been received on these programs.

The Butler County program which was developed in accordance with the resolution passed by the House of Delegates in 1959 was discussed at the State meeting and this has also been presented and discussed at each of the District Meetings. Some differences of opinion appear on this. This probably results from a misunderstanding of what this represents. This program applies to Butler County only. Any other County or other homogeneous area can work with the Blue Shield staff in developing a program of its own which may be similar to or quite different from the Butler County program.

New Out-Patient laboratory services and Supplemental Accident riders now available to employee groups have been discussed at the District meetings and have received mostly favorable reception.

Both the State and District levels recommended increasing the number of Hospital Utilization Study Committees. It is felt that all hospitals should have these. These studies will be of benefit to Blue Shield even though their concern is primarily with hospital utilization which is, of course, more directly the concern of Blue Cross.

It is hoped that local Medical Societies will make use of Blue Shield representatives to appear as the program at County Medical Society meetings. This will bring the liaison perhaps even a little closer than it has been in the past and will replace a second District Committee meeting each year.

The District Committees and State Committees are both available to function as adjudication committees. For the most part the procedure is considered satisfactory for resolving differences of opinion as to whether some member is entitled to service benefits or whether there is some complaint as to overcharging or extent of liability of Blue Shield members. Also, under the extended benefit rider or major medical coverage, some unusual fee might need to be studied.

Blue Shield reports that reserves are sufficient to permit a slight decrease in Blue Shield rates. This will be offset by a slight Blue Cross increase in employee groups.

We would like to point out that the chief function of the Physicians Relations Committee is as a liaison between the practicing physician and the Blue Shield organization. Active participation of members of the Society as members of their district and state committees will permit a minimum misunderstanding as to policies of Blue Shield function. This is also a way in which new ideas can be brought to the attention of the Blue Shield board and better contracts can quite possibly result therefrom.

Individual members of the Kansas Medical Society are welcome to comment to either your Blue Shield Physicians Relations Committee or to the Blue Shield staff.

O. R. CRAM, M.D., *Chairman*

CONSERVATION OF EYESIGHT

J. E. Hill, Arkansas City, Chairman; B. J. Ashley, Topeka; F. N. Bosilevac, Kansas City; E. J. Bribach, Atchison; L. L. Calkins, Kansas City, Mo.; D. O. Howard, Wichita; M. S. Lake, Salina; H. E. Morgan, Newton; W. M. Scales, Hutchinson; E. T. Siler, Hays; D. P. Trimble, Emporia; D. D. Vermillion, Goodland; Glenn R. Peters, Kansas City.

This committee has considered several problems at their two meetings held during the year.

This committee feels that the Snellen E. Chart is an adequate and usable method of testing visual acuity for Kansas public school children, and that more elaborate procedures are liable to show many false positives.

Graduates from the University of Kansas School of Medicine should in the future be instructed in the taking of eye tension and in the performance of other commonly accepted eye examinations useful in the general practice of medicine.

An educational program should be inaugurated for the benefit of physicians in Kansas engaged in general practice to acquaint them with the technique of taking tensions in the performance of their diagnostic procedures and to encourage all physicians to take ocular tensions.

On the basis of the glaucoma surveys held in Kansas the data obtained indicates that positive glaucoma findings are in keeping with the national average of two per cent. Further studies would not be of enough scientific value to warrant carrying them out. However public interest in these clinics is unduly great.

In conclusion I wish to thank each and every member of this committee who attended the meetings and cooperated in furthering the interests of Kansas Medicine.

JAMES E. HILL, M.D., *Chairman*

CONSERVATION OF HEARING AND SPEECH

J. A. Budetti, Wichita, Chairman; C. W. Armstrong, Salina; R. E. Bridwell, Topeka; H. R. Draemel, Salina; E. S. Gendel, Topeka; C. L. Gray, Wichita; W. P. McKnight, Wichita; E. E. Miller, Pittsburg; R. G. Montgomery-Short, Halstead; V. R. Moorman, Hutchinson; A. D. Pitman, Pratt; G. O. Proud, Kansas City; R. E. Riederer, Olathe.

During the past year the Committee has proceeded to actually implement the Referral Card from the school audiometrists to the physicians, which evolved from last year's efforts through the cooperation of the State Dept. of Health and the Dept. of Special Education of the State Dept. of Education both of which have cooperated not only in the planning but with the actual printing and distribution. These cards are now actively in use in experimental segments of the state. These cards have a two-fold purpose, 1. To improve the report between schools and physicians so that the necessary recommendation of the physician is carried out by mutual understanding of the problems and, 2. To supply vital statistics on the incidence of hearing difficulties, types found and remedies needed.

In conjunction with this same problem, joint action with these same departments has evolved a definite set of standards at distinct professional levels for classification of persons doing school audiometry. Persons can now establish their level of training consistent with the requirements of the job for which they are hired. The Committee has further proposed that these professional positions be licensed by the state to assure that only the qualified workers test our school children.

Similarly the Committee recommends licensing speech teachers at professional levels to be established and classified. For the purpose the Committee is devoting its time and energies for actual training by lectures from leading speech-therapy teachers of this state. Action will be deferred until further information and understanding is achieved.

Future agenda will include ways and means of publicizing the services of the state to mothers of pre-school children in the field of hearing and speech. Mothers of the 1, 2, and 3 year old child need to be educated and alerted on the signs of minimal hearing loss so that the partially handicapped may be found and helped.

JOSEPH A. BUDETTI, M.D., *Chairman*

CONSTITUTION AND RULES

A. W. Fegtly, Wichita, Chairman; R. E. Davis, Prairie Village; T. C. Ensey, Marion; A. C. Harms, Kansas City; Y. E. Parkhurst, Belle Plaine; A. S. Reece,

Gardner; G. L. Thorpe, Wichita; M. M. Tinterow, Wichita; C. E. Vestle, Humboldt; J. L. Lattimore, Topeka.

The committee has held two prolonged and controversial meetings during the year and now wish to present for your consideration a series of amendments, the first five of which are individual and must be so voted, the remaining amendments deal with the several places in the Constitution and By-Laws covering the formation and conduct of the House of Delegates, all being necessary to accomplish the structure of a House of Delegates presided over by a Speaker and Vice Speaker instead of the President, and patterned after the House of Delegates of the parent organization, the American Medical Association.

AMENDMENT NO. 1

Consolidating a number of small county societies into Multi-County component society has improved the individual interest of the members and has made their meetings more valuable and profitable to the State organization, but on careful study demonstrates that the members of the several counties have lost proportionately representation in the House of Delegates as originally planned. This amendment attempts to equalize representation. Originally the intent was for component society in each of the 105 counties, with a minimum of one delegate to each county. Because of the limited number of physicians in many counties, combinations into Multi-County societies were formed and are being encouraged. The Committee recommends its adoption.

Therefore Be It Resolved: That By-Laws Chapter V, Section 3, Page 14 be amended to read

Section 3. Each component society having made its annual report and paid its assessments as provided in this Constitution and By-Laws shall elect ONE DELEGATE (1) and ONE ALTERNATE (1) to the House of Delegates for each TWENTY (20) MEMBERS and major fraction thereof, PROVIDED, that each component single county society shall be entitled to at least one delegate and one alternate, and Provided further that each COMPONENT MULTI-COUNTY Society having membership less than 75 shall be entitled to elect one delegate and one alternate, PLUS one delegate and one alternate for each TEN (10) members and major fraction thereof on the membership roll. It shall be the duty of the secretary of each component society to send a list of the delegates and alternates to the Executive Secretary of this Society at least thirty days prior to each session.

AMENDMENT NO. 2

This amendment was requested by the Council

and the elected Delegates and its purpose is to change the plan of nominations for Alternate Delegate from the present requirement of 3 or more, because of which there has been frequent change in the occupant, and place it on a par with the office of Delegate and the other principal officers of the society in the category requiring only "one or more nominees" for the office. The committee feels that there has already been too much limitation to candidates offered for the various offices, and that if any changes were made in that portion of the duties of the nominating committee, we recommend that future consideration be made of having at least Secretary and Treasurer included in the three or more nominee class or of definitely changing nominees for all offices to "at least 2 or more."

The Committee recommends that this amendment **BE NOT ADOPTED.**

Be It Resolved: That BY-LAWS CHAPTER VI, SECTION 1, Line 13, Page 17 be amended as follows:

Strike out the word "and" before the words "delegate elect" and insert a comma (,) and the words "and an alternate delegate" and further in Line 15 and 16 strike out the words "and alternate delegate to the American Medical Association."

AMENDMENT NO. 3

Repeated requests have been made for some means by which new Councilors could be chosen in advance of the annual sessions. For a time the affected councilor districts have been notified by the Executive Secretary, and this change in the By-Laws amplifies that notice and provides means for selection by the component societies in the Councilor District.

The Committee recommends its adoption.

Be It Resolved: That By-Laws Chapter VIII, Section 15, Page 23 be amended to read:

Section 15. The EXECUTIVE SECRETARY shall notify each component society of each Councilor District at least three months in advance of the annual session at which a new councilor term begins for that district. A meeting of the component societies of a district may be held or a poll taken prior to the annual session to determine a Councilor to be recommended for the new term, and the Councilor shall be elected by a caucus of the delegates present from the several component societies of the district as required by the Constitution (Article IX Section 3). The results of the caucus shall be reported to the House of Delegates along with the names of the newly elected officers.

AMENDMENT NO. 4

Because the present is a time of earlier and more speedy communication and transportation it is expedient that in cases that special meetings of the House of Delegates need to be called, the previous time of notice is too long, and is a detriment rather than an advantage. The following amendment is therefore presented and the committee recommends its adoption.

Therefore Be It Resolved: That BY-LAWS CHAPTER V, SECTION 1, last line on page 13, and first line on page 14, shall be amended to read:

"Notice of such meeting shall be mailed to each component society at **LEAST TEN (10) DAYS** in advance of the date selected and shall state time, place, and purpose of the meeting."

AMENDMENT NO. 5

This amendment presented and discussed by a member of the committee is an extremely democratic version of the formation of a nominating committee for which many suggestions have been made. This plan throws the full responsibility for nomination, investigation of nominees as well as election exclusively in the hands of the elected delegates. If adopted and the remaining group of amendments are adopted it fits well into democratic purpose of the House of Delegates as always making by vote of the delegates, final decisions as to the plans, work, policies, and attempted projects of the Kansas Medical Society.

This amendment is offered for decision of the House **WITHOUT RECOMMENDATION.**

Therefore Be It Resolved: That BY-LAWS CHAPTER VI, SECTION 1, pages 16 & 17 be amended from the beginning down to the last word in line 6, page 17 to read as follows:

Section 1. "A nominating committee of five shall be elected by ballot from the elected delegates at the first meeting of the House of Delegates of each annual session. One member so elected shall be appointed as chairman of the committee by the incoming president of the Society."

Discussion in the committee meetings brought out:

FIRST. The House of Delegates is the primary legislative and governing body of the Society and as such is responsible for all plans, work, policies and activities of the Society. It is also charged with approval of all work carried on in the name of the Society by the COUNCIL or EXECUTIVE COMMITTEE in the intervals between annual meetings.

SECOND. Practically all the work, plans and activities for the benefit of the Society have been

planned, carried out with much credit and for the most part success by members of the Council, Past Presidents and a few unselfish, sincere and capable members who have given much thought, time and effort for the benefit of the Society.

THIRD. The delegates elected by the component societies have not for the most part taken much activity or interest in the decisions regarding all matters, which should be and are discussed and debated in the Reference Committees. Almost half of the component societies have persistently failed to send delegates and thus have shirked their share of responsibility for success or failure of the Society.

FOURTH. The plan of organization of our House of Delegates as handed down from the beginning included, officers, councilors, past-presidents as voting members, thus permitting them to VOTE upon the plans, or Policies advocated, carried on by them at the request of the House of Delegates, and to approve all actions taken by themselves in the intervals between annual sessions.

FIFTH. In the National organizations and in most of the State Organizations the Past-Presidents, Councilors, Alternate Delegates, and Chairmen of Committees are a part of the House of Delegates, with full permission of floor for discussion, they have NO VOTE in the final decisions for society benefit or activity.

It was concluded that a radical change of our plan to a plan similar to the National organization, MIGHT and SHOULD CAUSE the elected delegates to assume more interest, more responsibility and with it a greater study and participation in everything for the benefit of the Society, and as well give incentive to the membership of the half of the component societies who have for the past ten years not even had sufficient interest to send delegates to annual sessions.

With this end in view we present the following resolution which is self explanatory:

Be It Resolved: That the transition from the present plan of organization and conduction of the House of Delegates to a NEW PLAN making the voting power and decisions of the House, rest exclusively with the elected delegates, the presiding officer being a Speaker or Vice Speaker instead of the President, be accomplished by adoption of CONSTITUTION Amendments numbered 6, 7, & 8 and BY-LAWS amendments numbered 9 to 15 by a single vote, which shall include authorization of the committee to make any other word changes or minor

alterations which would conflict with the intent and purpose of this change.

Passage of this resolution by a two third affirmative vote will constitute adoption of amendments 6 to 15 inclusive.

The Committee recommends adoption.

AMENDMENT No. 6

CONSTITUTION ARTICLE IV, SECTION 2,
Page 5 Amended to read:

Section 2. The officers of this Society shall be a president, a president-elect, a first vice-president, a second vice-president, a secretary, a treasurer, a Speaker of the House, and a vice speaker of the House. All officers shall be elected by the House of Delegates of this Society for terms of office as are herein provided.

AMENDMENT No. 7

CONSTITUTION ARTICLE VII, SECTION 1,
Page 6 Amended to read:

Section 1. The House of Delegates shall be the primary legislative and governing body of this Society, and shall consist of the duly elected delegates presided over by a Speaker of the House or a Vice Speaker. Other officers, councilors, Chairman of the Editorial Board and Past Presidents of this Society who are not elected delegates shall be EX-OFFICIO members without vote.

AMENDMENT No. 8

CONSTITUTION ARTICLE IX, SECTION 1,
Line 2, Page 7 Amend as follows:

After the word "treasurer" add the words "speaker and vice-speaker of the House of Delegates."

AMENDMENT No. 9

BY-LAWS CHAPTER V, SECTION 8, No. 2,
Page 14 Amend as follows:

Delete the word "President" and insert the words "Speaker of the House" also after No. 5 in the agenda, insert a new No. 6 "Address of the Speaker."

AMENDMENT No. 10

BY-LAWS CHAPTER V, SECTION 9, No. 2,
Page 15 Amend as follows:

Delete the word "President" and insert the word "speaker" also in No. 3 after the word "Treasurer," insert the words "Speaker and Vice-speaker," also in No. 9 amend to read "Installation of new president and speaker."

AMENDMENT No. 11

BY-LAWS CHAPTER VII, SECTION 1, Line 9,
Page 17 Amend as follows:

Delete the words "House of Delegates and the"

AMENDMENT No. 12

BY-LAWS CHAPTER VII, SECTION 3, Line 3,
Page 18 Amend as follows:

Delete the words "the House of Delegates"

AMENDMENT No. 13

BY-LAWS CHAPTER VII, New SECTION 7
(re-number No. 8), Page 19 Insert:

Section 7. The Speaker of the House, elected annually, shall preside at all meetings of the House of Delegates, appoint all reference committees and refer proper resolutions or amendments or subjects to each, and shall perform such duties as custom and parliamentary procedure may require. He shall have the right to vote only in case of a tie. He shall be ex-officio a member of the Council without vote.

The Vice-Speaker shall be prepared to assume the duties of Speaker during his absence or at his request, shall assist the Speaker in the performance of his duties, act in capacity of Sergeant at arms. He shall have the right of vote only when in the capacity of Speaker and only in case of tie vote. In the event of death, resignation or disability of the Speaker he shall automatically succeed to that position for the unexpired term. He shall be an ex-officio member of the Council without vote.

In case of death, resignation or removal of both Speaker and Vice-Speaker, the Council shall appoint either or both for the unexpired term.

AMENDMENT No. 14

BY-LAWS CHAPTER VI, SECTION 1, Line 10,
Page 17 Amend as follows:

After the word "treasurer" insert the words "Speaker and Vice-Speaker of the House of Delegates" making lines 9 to 12 read: "each elective office consisting of one or more candidates for the offices of president-elect, first vice-president, secretary, treasurer, speaker and vice-speaker of the House of Delegates, delegate-elect and alternate delegate to the American Medical Association, and three or more candidates for the office of second vice-president."

AMENDMENT No. 15

BY-LAWS CHAPTER XI, SECTION 3, b & c,
Page 27 Amend as follows:

b. Line 2, Delete "president" and insert "Speaker of House of Delegates."

c. Line 2, Delete "president" and insert "Speaker of House of Delegates."

A. W. FEGTLY, M.D., *Chairman*

CONTROL OF CANCER

L. W. Reynolds, Hays, Chairman; J. R. Berger, Wichita; G. L. Campbell, Arkansas City; W. G. Cauble, Wichita; A. M. Cherner, Hays; L. K. Crumpacker, Wichita; J. C. Dysart, Sterling; A. A. Fink, Topeka; W. A. Grosjean, Winfield; H. L. Hiebert, Topeka; J. D. Hilliard, Medicine Lodge; W. J. Kiser, Wichita; J. R. Kline, Wichita; M. V. Laing, Kansas City; C. H. Miller, Parsons; N. C. Nash, Wichita; C. R. Openshaw, Hutchinson; D. C. Reed, Wichita; R. H. Riedel, Topeka; D. S. Ruhe, Kansas City; R. P. Schellinger, Emporia; P. H. Schraer, Concordia; B. E. Stofer, Wichita; G. M. Tice, Kansas City; L. E. VinZant, Wichita; H. M. Wiley, Garden City; R. M. Wright, Kansas City; George E. Burket, Kingman.

The Committee on the Control of Cancer has been working this year in working out policies in public and professional education. We have been well supported by the Kansas Division of the American Cancer Society. The Committee, as a whole, met once and there has been a considerable volume of correspondence regarding the work. The following items, we believe should have House of Delegates action:

1. The State Board of Health has discontinued the support of a Cancer Registry. We believe that this has been a worthy Public Health project and should be reinstated.

Resolved that the Kansas Medical Society request the State Board of Health to reinstate and support the Kansas State Cancer registry.

2. The Kansas Division of the American Cancer Society has requested that the Kansas Medical Society endorse a 10 step Cytology program to be implemented by the Kansas Division, American Society.

The Committee has studied this program and believes that it should be adopted.

Resolved that the Kansas Medical Society endorse the 10 step Cytology program as presented by the Kansas Division, American Cancer Society.

3. The Committee reviewed the film and educational material to be used in the teen age smoking and lung cancer report program to be used in the Kansas Schools. We believe that this program should be supported.

Resolved that the Kansas Medical Society endorse

the Teen Age Smoking and Lung Cancer program in the Kansas Schools.

The Chairman wishes to thank the various Committee Members for their assistance in carrying on the work of the Committee.

L. W. REYNOLDS, M.D., *Chairman*

ENDOWMENT

C. V. Black, Pratt, Chairman; R. A. Nelson, Wichita; R. J. Ohman, Dodge City; J. L. Perkins, Hutchinson; J. W. Randell, Marysville; R. Schrepfer, Kansas City; F. L. Smith, Colby; C. C. Underwood, Emporia; J. L. Lattimore, Topeka.

The Endowment Committee held one meeting in September, 1960. Endowment support was off this year, both in the number of contributors and the amount contributed. The largest single contribution was \$500.00 from Riley's Pharmacy in Wichita. There were 521 contributors for a total of \$9,866.00. Of this amount the Woman's Auxiliary accounted for 170 contributors for a total of \$2,183.00. This was more than double their previous efforts. Much of this was thru "In Memoriam" gifts. When their total is subtracted from the grand total, it becomes evident that the efforts of the physicians have dropped off about 40 per cent. There were however several 100 per cent counties. Shawnee County made the largest contribution. There will be an award for 100 per cent counties, I wish other 100 per cent counties would let me know about their efforts.

CYRIL V. BLACK, M.D., *Chairman*

GENERAL PRACTICE AWARDS

W. R. Lentz, Seneca, Chairman; C. W. Bowen, Topeka; F. E. Dillenbeck, El Dorado; L. E. Leigh, Overland Park; B. P. Meeker, Wichita; G. P. Neighbor, Kansas City; A. K. Ratzlaff, Goessel; Sam Zweifel, Kingman; J. Allen Howell, Wellington; N. L. Francis, Wichita.

Your Committee on General Practitioners Awards met twice this year. At the first meeting it was decided not to submit a nominee to the AMA GPA Committee, instead establish a State Award for one or more outstanding General Practitioners of the year. These awards to be presented for the first time at the Annual Kansas Medical Society Meeting in 1962. At the second meeting it was suggested that this Award be expanded to include all specialties of medicine, as well as that of General Practice. Certain categories were suggested as basis for selection of these nominees.

It was suggested that a letter of explanation as

well as a questionnaire be sent to each County Medical Society asking for their cooperation and approval in such a project. This has been done but at the time of printing there has not been time for replies to be received. All this is an attempt to promote better public relations between the Professional-Lay groups within the State of Kansas.

BE IT RESOLVED: That subject to the approval of the House of Delegates of the Kansas Medical Society and the membership of the County Medical Societies of the State of Kansas, an Award be established known as "The Practitioner of the Year Award," and that same Award be presented to one or more outstanding physicians each year. The means and basic qualifications necessary for selecting such nominees for this Award to be determined in the future.

WILLIAM R. LENTZ, M.D., *Chairman*

HISTORY

R. R. Melton, Marion, Chairman; J. F. Barr, Ottawa; H. C. Clark, Wichita; A. W. Corbett, Emporia; O. W. Davidson, Kansas City; R. D. Grayson, Overland Park; J. G. Hughbanks, Independence; I. A. Koenek, Halstead; R. H. Major, Kansas City; H. P. Palmer, Scott City; R. A. Schwegler, Lawrence; G. S. Vorhees, Leavenworth; H. St. Clair O'Donnell, Ellsworth.

The Committee on History has not met and no old or new business has been transacted. Your chairman has made a few suggestions to the central office that were presented to the House of Delegates but evidently were not understood. They were as follows:

1. That the membership cooperate in the various community celebrations of the Kansas Centennial in such a manner as they may approve such as, floats, pageants and speeches that depict the pioneer doctor of medicine.

2. That the book "The Kansas Doctor" be placed in as many libraries in Kansas as possible and if possible to be in memory of some of the older physicians of that community.

3. That an effort be made to stimulate interest in the medical students at the University of Kansas in the "History of Kansas Medicine" by offering an annual award to the students submitting papers on that subject if the paper dealt with a Kansas physician or a member of the University of Kansas School of Medicine faculty and that these papers be placed in a special file in our central office—this award to be in addition to the Guffey Awards that are now given for this subject.

4. That appointments to this committee not be made on a state wide geographical basis but on a basis of easy driving distances that would enable a

member of the committee to attend without having to drive clear across the state.

5. That an effort be made to have the executive secretary call committee meetings and be in attendance to record the minutes and suggestions made by that committee.

Your chairman has not been a very good chairman and has left things go that probably should have been attended. For this I apologize. I realize that committee members expect the chairman to call a meeting. This I have not done. I have not been contacted for anything except a report of what had been done. It is herewith submitted.

RALPH R. MELTON, M.D., *Chairman*

LEGISLATION

H. M. Glover, Newton, Chairman (Executive Committee plus A.M.A. Delegates)

The Committee on Legislation has never had a distinct meeting as such. Its members are the Executive Committee plus the A.M.A. Delegates. At meetings of the Executive Committee, such legislative matters as needed consideration have been discussed, usually with one or both of the A.M.A. Delegates present; such matters have been incorporated in the minutes of the Executive Committee.

HAROLD M. GLOVER, M.D., *Chairman*

MATERNAL WELFARE

H. M. Floersch, Kansas City, Chairman; A. H. Baum, Dodge City; R. M. Carr, Junction City; E. X. Crowley, Wichita; H. R. Elliott, Pittsburg; H. M. Foster, Hays; E. S. Gendel, Topeka; D. E. Gray, Topeka; R. G. Heasty, Manhattan; J. G. Kendrick, Wichita; J. G. Lee, Jr., Kansas City; E. A. Martin, Parsons; O. L. Martin, Salina; M. D. Morris, Topeka; W. R. Roy, Topeka; C. D. Shrader, Salina; R. Sohlberg, Jr., McPherson; J. C. Schroll, Hutchinson; E. F. Steichen, Lenora; T. F. Taylor, Phillipsburg; D. L. Traylor, Emporia; H. L. Wilcox, Lawrence; D. H. Wood, Pittsburg; L. E. Woodard, Wichita; P. T. Schloesser, Topeka; J. L. Lattimore, Topeka; Kermit E. Krantz, Kansas City.

The reduction of loss of life due to childbirth is a major overall concern of the Maternal Welfare Committee. Toward this end, the members of the committee review the cases of maternal mortality by individual investigations to determine cause of death by encouraging education about pregnancy, in establishing better obstetrical standards both for the physician and the hospital, and in concerning itself with all matters of maternal welfare.

Meetings: In August and in May, the committee

met with a total of 15 cases reviewed in these meetings. In December, a joint meeting of the Maternal Welfare Committee and the Perinatal Mortality Committee of the Kansas Medical Society was held in Topeka. During this combined meeting, the material from the 1959 birth certificates was reviewed. The Vital Statistics Division of the State Board of Health prepared the massive data on perinatal mortality for the consideration of these two groups. The conclusions reached for the correlation of the data to perinatal mortality can be found in the detailed narrative of the minutes of this meeting. The committee did agree to endorse an appeal for obtaining further staff help in the Division of Vital Statistics to carry out the statistical analyses of the birth certificates in the future.

During the year, a folder on adoption and child care, pertaining to licensed child care agencies and procedures for adoption, was recommended for mailing to the general membership of the Kansas Medical Society by the Maternal Welfare Committee, and physicians received this folder with much interest.

Sections have been assigned to various physicians on the committee to a guide for hospital obstetrical practice and the committee will continue to work to develop this manual of standards and procedures. The sections will be serialized in the *MEDICAL JOURNAL* as they become available to the chairman and before publication of the individual guide.

The total number of maternal deaths which occurred during the year 1960 was 11, representing an even greater reduction in the maternal death rate. Recent research on the incidence of maternal deaths in Kansas revealed that 102 maternal deaths occurred in 1940. This particular information, along with some of the other contributions of the Maternal Welfare Committee to general maternal health in the past few years, was instrumental in helping in the passage of a Bill through the Senate to protect the confidentiality of research studies of the medical society. The rate of maternal deaths in 1940, per 10,000 live births, was 3.5. The rate in 1958 was 2.3 obstetric deaths per 10,000 live births and for 1960, 1.6 obstetric deaths per 10,000 live births.

The enthusiasm and activity of the Maternal Welfare Committee members continues to be very high as manifested by the unprecedented attendance at all meetings, as well as the vigor with which the committee has undertaken to clear all cases as soon as they are reported. For the first time, an attending physician was present when his case was reviewed by the committee, although the attending physician has been invited in the past. By his cooperation in attending the meeting and the contribution that he made to the study of the case because of his firsthand information, a better study was carried out. The com-

mittee resolved to extend an invitation to each attending physician in writing in the initial contact made with him after a maternal death. This type of sustained interest by the members of the committee has added greatly to the reviews and classifications of maternal deaths.

H. M. FLOERSCH, M.D., *Chairman*

NECROLOGY

O. R. Clark, Topeka, Chairman; D. E. Gray, Topeka; R. Greer, Topeka; D. Lawson, Topeka; J. A. Segerson, Topeka.

The Committee on Necrology submits the following list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates:

| <i>Name and Address</i> | <i>Age</i> | <i>1960</i> |
|---|------------|-------------|
| D. G. Buley, M.D., <i>Wichita</i> | 82 | Mar. 18 |
| V. J. Elson, M.D., <i>Paola</i> | 53 | Apr. 5 |
| Ralph L. Funk, M.D., <i>Topeka</i> | 82 | Apr. 5 |
| William L. Warriner, M.D., <i>Topeka</i> | 97 | Apr. 23 |
| Loe Albright Sutter, M.D., <i>Wichita</i> | 76 | Apr. 26 |
| Jacob Hinden, M.D., <i>Strong City</i> | 87 | May 5 |
| Charles S. Huffman, M.D., <i>Columbus</i> | 94 | May 6 |
| E. H. Clayton, M.D., <i>Arkansas City</i> | 79 | May 10 |
| Albert C. Baird, M.D., <i>Parsons</i> | 57 | May 14 |
| L. O. Forney, M.D., <i>Hutchinson</i> | 88 | May 25 |
| Frank X. Lenski, M.D., <i>Iola</i> | 64 | June 18 |
| Edward Henry Atkin, M.D., <i>Hoisington</i> | 74 | June 23 |
| William T. Wilkening, M.D., <i>Fort Scott</i> | 74 | June 27 |
| Henry S. Dreher, Sr., M.D., <i>Salina</i> | 66 | July 12 |
| D. R. Sterett, M.D., <i>Leavenworth</i> | 80 | July 27 |
| E. L. Kalbfleisch, M.D., <i>Phoenix</i> | 78 | Aug. 27 |
| A. K. Owen, M.D., <i>Denver</i> | 79 | Aug. 28 |
| Leroy Calkins, M.D., <i>Fairway</i> | 66 | Sept. 1 |
| N. A. Burkett, M.D., <i>Council Grove</i> | 44 | Sept. 8 |
| A. R. Hatcher, M.D., <i>Wellington</i> | 76 | Sept. 16 |
| Ernest Harvey, M.D., <i>Salina</i> | 47 | Sept. 26 |
| R. A. Stewart, M.D., <i>Hutchinson</i> | 92 | Oct. 25 |
| David T. Loy, M.D., <i>Great Bend</i> | 52 | Nov. 3 |
| Joseph W. Spearing, M.D., <i>Columbus</i> | 70 | Dec. 15 |
| Robert H. Maxwell, M.D., <i>Wichita</i> | 53 | Dec. 17 |

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|---|----|---------|
| Charles C. Hawke, M.D., <i>Winfield</i> | 75 | Jan. 13 |
| Eldon S. Miller, M.D., <i>Kansas City</i> | 57 | Jan. 14 |
| James A. Simpson, M.D., <i>Salina</i> | 79 | Jan. 18 |
| John D. Hilliard, M.D., <i>Medicine Lodge</i> | 43 | Jan. 22 |
| Roscoe Nichols, M.D., <i>Hiauwatha</i> | 80 | Jan. 22 |

Orville R. Clark, M. D., *Chairman*

NOMINATING

T. P. Butcher, Emporia, Chairman; O. W. Davidson,

Kansas City; M. C. Eddy, Hays; B. A. Nelson, Manhattan; L. S. Nelson, Sr., Salina.

The Nominating Committee met on Sunday, February 12, and submitted the following slate of officers for election at the annual session in Wichita.

President-Elect

Norton L. Francis, M.D., Wichita. Graduate of the University of Nebraska School of Medicine, 1935. Performed active duty with the U. S. Naval Reserve, 1942-46. Was certified to the National Board of Otolaryngology, 1941. Has been president of the Sedgwick County Medical Society. Is currently the First Vice-President.

First Vice-President

H. St. Clair O'Donnell, M.D., Ellsworth. Graduate of Washington University, St. Louis, 1917. Served on active duty with the U. S. Army, 1918-19. Is a fellow in the American College of Surgeons. Among positions held are Alternate Delegate to A.M.A. and numerous committees. Is currently a Second Vice-President.

Second Vice-President (listed alphabetically)

H. Penfield Jones, M.D., Lawrence. Graduate of Harvard University Medical School, Boston, 1931. Served in U. S. Army 1943-45. Is a fellow in the American College of Surgeons. Has been a councilor. Is a member of the Douglas County Medical Society.

Glen E. Kassebaum, M.D., El Dorado. Graduate of Northwestern University School of Medicine, 1923. Saw active duty during World War II. Is a fellow in the American College of Surgeons and was president of the Kansas Chapter. Has been active in Blue Shield and been chairman for several years of the Committee on Medical Economics.

James A. McClure, M.D., Topeka. Graduate of University of Kansas, 1944. Served in Navy 1945-46. Member of the Council and of American Board of Urology.

John C. Mitchell, M.D., Salina. Graduate of University of Kansas School of Medicine, 1938. Served in the U. S. Army 1943-44. Active in committees and is currently a member of the Council.

Secretary (listed alphabetically)

Woodrow M. Campion, M.D., Liberal. Graduate Kansas University Medical School, 1939. Fel-

low of the American Board of Internal Medicine. Served in U. S. Army 1941-45.

Adelbert R. Chambers, M.D., Iola. Graduate of University of Kansas School of Medicine, 1923. American Academy of General Practice. Served two terms in the Kansas Legislature.

Leland Speer, M.D., Kansas City. Graduate of University of Kansas, 1936. Served in the Navy 1940-46. Specialty of practice is Pediatrics.

George L. Thorpe, M.D., Wichita. Graduate from Tulane University, 1938. American Academy of General Practice. Served in the Air Force as a medical officer, 1943-45.

A.M.A. Delegate

George F. Gsell, M.D., Wichita. Graduate of Rush Medical College, 1933. Served in the Armed Forces during World War II. Is a fellow of the American Board of Ophthalmology. Currently Delegate to the A.M.A.

Alternates to A.M.A. Delegate (listed alphabetically)

Cyril V. Black, M.D., Pratt. Graduate of the University of Texas, 1930. Has served with the Selective Service Board. Is a fellow of the American College of Surgeons and a member of the American Academy of General Practice. Has served as Alternate Delegate from Kansas.

George E. Burket, Jr., M.D., Kingman. Graduate of the University of Kansas School of Medicine, 1937. Is a member of the American Academy of General Practice and has served as president of the Kansas Chapter. Served with the Armed Forces during World War II. Is currently secretary of the Kansas Medical Society.

William J. Reals, M.D., Wichita. Graduate of Creighton University School of Medicine, 1945. Served in the U. S. Army 1943-45. Fellow of the American Board of Pathology. Currently is president of Sedgwick County Medical Society, and on Council.

Edward J. Ryan, M.D., Emporia. Graduate of University of Kansas Medical School, 1936. Fellow of the American Board of Internal Medicine. Member of American College of Physicians. Has served as Councilor and has been president of Kansas Blue Shield.

Henry N. Tihen, M.D., Wichita. Graduate of Rush Medical College, 1918. Fellow of American Board of Internal Medicine. Has been president

of Sedgwick County Medical Society and of the Kansas Medical Society.

T. P. BUTCHER, M.D., *Chairman*

PERINATAL WELFARE

W. H. Crouch, Topeka, Chairman; R. D. Boles, Dodge City; V. E. Bolton, Kansas City; M. D. Christensen, Kiowa; J. M. Graham, Leavenworth; G. F. Jordan, Jr., Wichita; H. P. Jubelt, Manhattan; R. C. Knappenberger, Wichita; O. L. Martin, Salina; R. E. Pfuetze, Topeka; L. R. Pyle, Topeka; P. T. Schloesser, Topeka; R. N. Shears, Hutchinson; T. E. Young, Topeka; N. L. Francis, Wichita; Henry Aldis, Fort Scott.

The Perinatal Welfare Committee has met several times during the past year. Our primary work has been in the studying of the statistics gleaned from the birth certificates from every birth in the state of Kansas, and in the promotion of development of perinatal mortality committees throughout the state of Kansas. We had a combined meeting with the maternal welfare committee, we are proposing to analyze said data and send data concerning each hospital's perinatal mortality to each individual hospital. This will be done by the State Board of Health. One prerequisite for the receiving of this data would be the participation of the local hospital in their own perinatal mortality study. Information about perinatal mortality committee development can be obtained from this committee.

We have promoted the development of the law patterned after the similar law in Minnesota to protect physicians' data working in perinatal mortality and tissue committees in local hospitals as well as at the state level. This would come under the heading of a confidentiality statute. This law has been presented at this meeting of the legislature.

The committee will continue to function in its present direction with analysis of the birth certificates and the promotion of the development of perinatal committees for local hospital study in an effort to improve maternal and newborn infant care and prevention of infant morbidity and the increase of fetal salvage.

WM. H. CROUCH, M.D., *Chairman*

PUBLIC RELATIONS

L. S. Nelson, Sr., Salina, Chairman; S. A. Anderson, Clay Center; C. H. Benage, Pittsburg; T. P. Butcher, Emporia; E. W. Crow, Wichita; A. H. Dyck, McPherson; J. L. Lattimore, Topeka; J. W. Manley, Kansas City; G. Marshall, Colby; C. W. Miller, Wichita; L. W. Patzkowsky, Kiowa; J. R. Twinem, Olathe; H. M. Glover, Newton.

The Committee on Public Relations of the Kansas Medical Society met in The Pine Room of the Warren Hotel in Salina, Kansas at 10:20 a.m., Sunday, January 15, 1961—Present were Dr. L. S. Nelson, Chairman and Dr. J. W. Manley who acted as Secretary.

Preliminary discussion centered around the "Comprehensive Survey on Education." This brought forth the opinion that Doctors of Medicine, being educated individuals, should be conversant with and help to implement the major conclusions of this survey. Kansas could lead in the education of her youth by so doing. Copies of this summary report, a condensation of the five volume report, can be had by writing "The Research Department, Kansas Legislative Council"—Room 506, State House, Topeka, Kansas.

The next topic of discussion was ways and means of encouraging our legislators to enact enabling legislation to implement the Kerr-Mills Bill which is now law. This compromise legislation has been accepted by the A.M.A. as preferable to other types of legislation such as medical care tied to the Social Security Program. Conversation between doctor and patient and other lay people of intelligence would do much to crystallize the public thinking in these matters.

Experience has revealed that laymen, as well as patients, are interested in the opinion of a physician in matters of citizenship as well as scientific medicine. We believe that it is the function of this committee to direct attention to current important issues. Experience has also revealed that the best place to contact our legislators is when they are in their home communities.

L. S. NELSON, M.D., *Chairman*

RURAL HEALTH

C. R. Svoboda, Chapman, Chairman; P. D. Adams, Osage City; V. E. Brown, Sabetha; J. G. Claypool, Howard; F. G. Freeman, Pratt; M. F. Frederick, Hugoton; R. E. Grene, La Crosse; H. W. Hiesterman, Quinter; P. H. Hostetter, Manhattan; R. L. Krause, Goesel; E. E. Long, Humboldt; R. P. McCarthy, Bethel; D. Marchbanks, Hill City; L. W. Patzkowsky, Kiowa; D. R. Pierce, Topeka; J. G. Rowlett, Paola; J. Scanlon, Horton; M. E. Schulz, Russell; R. R. Snook, McLouth; E. F. Steichen, Lenora; M. H. Waldorf, Jr., Greensburg; H. O. Williams, Cheney; D. H. Wood, Pittsburg; E. D. Yoder, Denton; Glenn R. Peters, Kansas City.

The Rural Health Committee met at Manhattan in October with other lay leaders to form the Rural Health Council of Kansas with a specific purpose to "promote programs for the improvement of rural health in Kansas." Civil Defense plans were dis-

cussed as well as problems of local atomic attack. All immunizations should be as current as possible to avoid epidemics and it was pointed out that sources of supply may be wiped out in the event of attack.

Kansas is facing a new health problem in the care of the migratory worker as it is now ranked fifth in the nation.

There are still many towns in Kansas seeking a doctor. The committee has been trying to screen these requests to assist any candidates seeking such locations.

The Rural Health Committee will meet with the Medical School Committee in March at the Medical Center to discuss problems of mutual interest.

CHARLES R. SVOBODA, M.D., *Chairman*

SCHOOL HEALTH

C. M. Barnes, Seneca, Chairman; M. D. Athon, Overland Park; W. F. Bernstorff, Winfield; V. Branson, Lawrence; J. A. Butin, Chanute; W. H. Crouch, Topeka; E. S. Gendel, Topeka; E. D. Greenwood, Topeka; R. Greer, Topeka; Ralph Hale, Wichita; H. P. Jubelt, Manhattan; M. S. Lake, Salina; H. Lutz, Augusta; W. C. Menninger, Topeka; W. E. Myers, Iola; R. A. Nelson, Wichita; R. R. Snook, McLouth; H. R. Wag-enblast, Salina; J. L. Lattimore, Topeka.

Your School Health Committee is proud of its communicative and participation efforts of the past year. By this time you will have received the "Emergency Procedures" for accidents and illness in Kansas schools. This booklet was produced largely through the efforts of Dr. Evalyn Gendel and Dr. William Crouch, but all committee members made suggestions and approved this effort in response to the request of the Kansas School Health Council.

We are justly proud that Dr. Evalyn Gendel, one of our committee members, is president of the School Health Council this year. As you know from the immunization evaluation study of our state, Dr. Gendel has helped compile very noteworthy material concerning the need for more and better immunization in our children of school age. Right now our children are vulnerable to an epidemic of diphtheria or smallpox not to even mention inadequate and incomplete protection against poliomyelitis. Our committee plans a greatly needed crusade concerning immunization this coming year.

Drs. Gendel, Crouch, Barnes, and Greenwood of this committee and Dr. Thiehoff of the Department of Preventive Medicine of the Kansas University Medical Center were Kansas Medical Society members in attendance at the National Conference of Teachers and Physicians in Chicago, March 8 to March

(Continued on page 199)



Blue Shield

A Special Report from the President

Each year it has been customary for the President of Blue Shield to report to the physicians of Kansas. At this time, it is my privilege and pleasure to briefly review the major activities and progress of Blue Shield.

Historically, Blue Shield functions only as a result of combined thought and effort of physicians offering their services, members needing these services and a staff facilitating the operation. It is my feeling that success in making these services available at fair and reasonable cost is our best weapon against governmental, federalized or socialized control of the practice of medicine. As it has been said before, it is the sincere belief of the officers and trustees that the irreplaceable key piece in the scheme is good professional relations. Without a high degree participation by a large majority of the doctors of the Kansas Medical Society, the Plan would not stand a chance of success. With their interest and cooperation, almost any obstacle may be overcome.

Blue Shield efforts during 1960 were directed towards achieving two general goals that are necessary for an effective plan, namely, financial soundness and membership growth. The financial reserve at the beginning of 1960 was below the desired level which is expressed in terms of 3 months of case and operating expense. As you may recall, a moderate rate increase went into effect early in 1960 and during the year the reserve was built up to a satisfactory level above the minimum. A decrease in dues was then possible and was implemented at the beginning of 1961. Many other efforts in support of the goal of financial soundness were carried out during the past year.

Special staff assistance was provided to the Hospital Utilization Study Program. This is a joint venture involving the Kansas Medical Society, Kansas

Hospital Association and Blue Cross-Blue Shield. The utilization of hospital employee groups was one of the first studies undertaken to stress the relationship between the use of benefits and the cost of prepayment.

A concentrated effort is being made during 1961 to communicate the advantages of Blue Shield to the public. The use of a documentary television series "Medicine 1961" has been well received by the majority of the membership.

The House of Delegates, of the Kansas Medical Society, by resolution, authorized Blue Shield to work with local component medical societies to develop special plans to meet local needs. A community approach to careful use of Blue Cross and Blue Shield is well under way in Leavenworth County in a special program that utilizes local professional review committees to study and control unnecessary utilization.

A new local "Service Benefit" program has been developed in Butler County. This local plan will become effective in May or June. This particular plan will enable members to prepay basic medical expenses on a more adequate level which will benefit both the member and the physician. It is expected that other areas in Kansas will also develop some type of local program during the coming year. There has been a significant increase in the number of members that have the Schedule 2 (Plan B) \$4,500 contracts. About 17 per cent of the membership now have this higher level program compared to 12 per cent in the previous year, and an additional 4 per cent have the high level benefits of the special Blue Shield National Program for Federal Employees which went into effect in 1960.

There has also been an increase in the number of members that have selected more adequate protection

against prolonged or costly illnesses in the form of Major Medical contracts. There were 58,000 members with this type of program in 1960 compared to 12,000 at the end of the previous year. There were almost 540,000 members of Blue Shield at the end of 1960 which is slightly less than the membership total for the previous year.

On the national scene, the A.M.A. took a precedent, setting action by urging direct liaison between medical societies and the Blue Shield Plans to maintain the best possible physician-plan relationship. As you know, all policy changes of a major nature in Kansas Blue Shield must be approved by the Kansas Medical Society through its appropriate committees and House of Delegates. Throughout the year Blue Shield has worked closely with the Society, the Fee Committee and the Blue Shield Relations Committee. This two way process of communications is of great value and the help and advice Blue Shield receives from these committees is greatly appreciated. The individual efforts of physicians throughout Kansas have also contributed much towards making Blue Shield a better Plan. It is my hope that each of you will become better acquainted with Blue Shield affairs and that you will continue to give guidance and direction to the future development of Blue Shield.

JAMES B. FISHER, M.D., *President*

Committee Reports

(Continued from page 197)

12. We participated in round table discussions with educators concerning school health problems and we listened to very educational and inspirational formal addresses on subjects relating to growth and development. Dr. Greenwood of the Menninger Foundation and a member of our committee presented a very factual and informative paper on the subject of Child Mental Health from the standpoint of "School Opportunities."

At our last committee meeting of the year on February 2, 1961, many things were discussed and proposed concerning School Health. We call your attention to the fact that we are now in cooperation with educators in the field of athletics and physical education in producing a handbook as a guide to the coaches and physical educators of the state on the subject of Athletic Injuries and their care. We are also making plans to invite any and all doctors particularly interested in Athletic injuries to attend a joint symposium on this subject with the coaches at their annual meetings in late summer and fall. Watch for our announcements about this!

Also at the last committee meeting it was moved and agreed to submit a resolution to the House of Dele-

gates of the Medical Society to the effect that interscholastic competition in junior high and elementary schools be abolished in the interest of better physical, mental, and emotional school health. Here is the resolution:

1. Whereas, the American Medical Association Committee on school health, the National Education Association Committee on school health, the American Academy of Pediatrics Committee on school health, and other authoritative organizations have recommended that interscholastic competition in junior high schools and elementary schools be discontinued. The School Health Committee of the Kansas Medical Society recommends that the Kansas Medical Society adopt a policy recommending the abandonment of interscholastic competition at the junior high and elementary level.

2. We make this recommendation for the following reasons:

A. The effect of such competition on a developing child produces unnecessary emotional and physical strains.

B. Variances in the growth rate of such children may put children weighing 80 lbs. against those weighing as much as 180 lbs.

C. Injury at these ages is more frequent and more severe.

D. Parental pressures to excel frequently become excessive.

E. Equipment and coaching is generally inferior.

F. Emphasis on varsity and interschool athletics has submerged the true purpose of physical education, which is so necessary to both the boys and the girls in this age group.

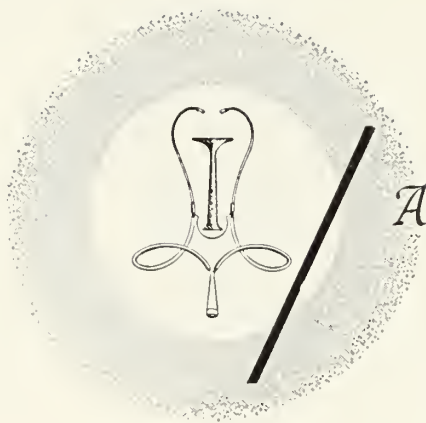
G. The program of participation by these children and by the whole schools are becoming more and more on a college level with bands, uniforms, pep squads, cheer leaders, and other paraphernalia overshadowing the real purpose of education at this critical age.

H. The majority of school children in these schools do not participate in any form of athletics, and few have opportunity to develop emotionally and physical as they should.

I. The School Health Committee agrees in principle with the Conant report that classroom education, realistic physical education and strong intramural programs, in which all students participate, should be our desired goal.

CONRAD M. BARNES, M.D., *Chairman*

Starting with purchases since June 1, 1959, new E and H bond interest is $3\frac{3}{4}$ per cent to maturity. Old E and H bonds pay more, too, by an average one-half per cent.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

A compilation of speeches on medical office management and patient relations given at the annual convention of the American Association of Medical Assistants in Dallas, Texas, last October is now available on request.

Copies of the proceedings of the second annual leadership symposium for medical assistants entitled "The Challenge of the '60s," are being offered on request by Lakeside Laboratories, Inc., 1707 East North Avenue, Milwaukee 1, Wisconsin, which annually sponsors the convention feature.

The UCLA School of Medicine, in cooperation with the Hebrew University-Hadassah Medical School in Jerusalem and the Beilinson and Tel Hashomer Hospitals in Tel-Aviv, is offering a Clinical Postgraduate Program in Israel April 20-May 7, 1961.

The program will offer an opportunity for physicians from the United States not only to attend an excellent medical program, but also to visit in the homes of Israeli physicians and to participate in social events which are being planned.

The Thompson, Brumm & Knepper Clinic announces the twelfth annual Dr. F. G. Thompson Memorial Lecture on May 18, 1961, at the Clinic Building, St. Joseph, Missouri.

The speaker will be Dr. O. T. Clagett, Professor of Surgery, Mayo Foundation Graduate School, University of Minnesota. The title of his lecture will be "Treatment of Carcinoma of the Breast; a controversial subject."

The next program for the family physicians will be held at the Neurological Hospital, 2625 West Paseo, Kansas City, Missouri, April 30, 1961. The meeting will start at 2:00 p.m.

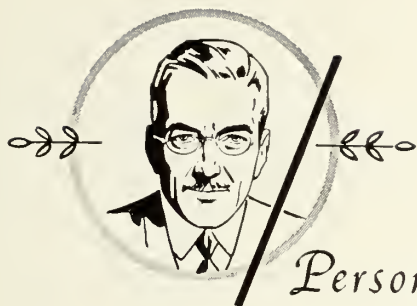
The theme will be "The Depressed Patient." The movie, "The Faces of Depression" will be shown and this will be followed by a case presentation and discussion of treatment measures.

All interested physicians are invited to attend. This program has the approval of the Greater Kansas City Academy of General Practice.

The National Library of Medicine has just issued a bibliography on Physiologic Involution in Normal Aging Man. Copies may be obtained at no cost upon request to: Acquisition Section, National Library of Medicine, Washington 25, D. C.

The latest edition of the annual publication "Reviews of Medical Motion Pictures" is now available upon request. It contains all of the reviews published in *The Journal A.M.A.* from January 1 through December 31, 1960. The purpose of these reviews is to provide a brief description and an evaluation of motion pictures which are available to the medical profession. This booklet is prepared and distributed by: American Medical Association, Communications Div., Department of Medical Motion Pictures and Television, 535 North Dearborn St., Chicago 10, Ill.

A program of post-graduate courses will be offered this year for the first time by The American College of Obstetricians and Gynecologists in conjunction with its Tenth Anniversary Clinical Meeting April 20-28, 1961, at the Americana Hotel, Bal Harbour, Fla.



Personalities—IN KANSAS MEDICINE

Dr. William V. Trekell, Dodge City, has been notified that he has been certified a specialist in surgery by the American Board of Surgery.

Dr. Homer L. Hiebert, Topeka, has been elected a Fellow in the American College of Radiology.

Dr. Wirt Warren, Wichita, attended a course on "The Kidney" offered by the University of Oklahoma Medical Center at Ponca City on January 24. Then on February 13-14 he attended a course on "Hypertension" at K. U. Medical Center.

Dr. George Marshall, Colby, was elected president of the St. Thomas Hospital medical staff at their regular meeting recently.

Dr. B. M. Mattassarini, Wichita, has been nominated as one of the six nominees for three positions on the board of directors at the University of Kansas Alumni Association.

Drs. Hugh Riordan and Leo Cawley, Wichita, spoke at a meeting of the Wichita Association for Retarded Children. Their subject was "Research in the Field of Mental Retardation."

Dr. Mack A. Carter, Wichita, attended the New Orleans Academy of Ophthalmology meeting in New Orleans, February 20-25.

Dr. R. Dale Dickson, Topeka, attended the March 9-10 national seminar of medical consultants of the Jewish National Home for Asthmatic Children at

Denver. Physicians attended the seminar from throughout the nation.

Dr. Edward Greenwood, Topeka, was invited by Mr. Abraham Ribicoff, Secretary of Health, Education and Welfare, to participate in a one-day conference on Fitness of Youth, and some consideration for further development of better programs for Youth Fitness. The conference took place in Washington, D. C., February 21.

I keep six honest serving-men (They taught me all I knew); Their names are What and Why and When and How and Where and Who.

—*Rudyard Kipling*

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Jay S. Benton, M.D.
201 South Pine
Newton, Kansas

Russell E. Bridwell, M.D.
609 National Reserve Bldg.
Topeka, Kansas

Ivan H. Carper, M.D.
327 Chestnut
Halstead, Kansas

John J. Chung, M.D.
State Sanatorium
Norton, Kansas

Dean T. Collins, M.D.
Winfield State Hospital
Winfield, Kansas

Clarence B. Francisco, M.D.
Winfield State Hospital
Winfield, Kansas

Antonio S. Fueyo, M.D.
Topeka State Hospital
Topeka, Kansas

Frederick A. Garlock, M.D.
3504 Broadway
Great Bend, Kansas

Theodore L. McNutt, M.D.
Medical Arts Building
Ellinwood, Kansas

John D. MacCarthy, M.D.
325 Maine Street
Lawrence, Kansas

G. M. Martin, M.D.
State Board of Health
State Office Building
Topeka, Kansas

Charles R. Phipps, M.D.
Box 547
Belle Plaine, Kansas



Book REVIEWS

COMPLICATIONS OF PREGNANCY, Staff of the Mount Sinai Hospital, edited by Alan F. Guttmacher, M.D. and Joseph J. Rovinsky, M.D. Williams & Wilkins Co., Baltimore, Md., 1960. 616 pages, \$16.50. Illustrated.

This volume is an excellent addition to obstetric literature. It covers the intrinsic complications in a satisfactory manner but its particular virtue is that it includes and correlates the extrinsic conditions as well. Thus, pre-existing cardiovascular renal disease, pulmonary pathology, and viral diseases are among the topics considered. It is a thoroughly practical book which includes not only helpful diagnostic features but specific therapeutic procedures. The result is a volume which any specialist would find one of his most valuable references and a general practitioner doing any amount of obstetrics could find indispensable. The sections are written, as the title indicates, by the members of the staff of the Mount Sinai Hospital with Doctors Guttmacher and Rovinsky editing the effort. The result is that the non-obstetric conditions are presented by specialists in other fields, lending significant authority, and the obstetric correlation and discussion is of the highest order.—*D. E. G.*

MEDIEVAL AND RENAISSANCE MEDICINE, Benjamin L. Gordon, M.D., Philosophical Library, Inc., N. Y., 1959. Pages 843. \$10.00.

This is a book which is not likely to find its way into many private libraries but is an excellent reference work for the student of medical history. The author is a physician with several commendable works to his credit including the editorship of certain phases of medical history for the *Encyclopaedia Britannica*.

It covers the period from the fifth to the fifteenth centuries and utilizes biographical sketches as well as discussion of medical progress of the various pe-

riods and places. It included excerpts from manuscripts and books of the time. Since the medical philosophy of the fifth century was rooted in the earliest medical thought, developed in the environment of the Mediterranean cultures, and undergoing the conditioning of the neo-Christian periods, this, in fact, constitutes a survey of medicine from antiquity to the day of what we consider scientific truth introduced by Boyle, Fernel, and Thomas Browne.—*D. E. G.*

CORRELATIVE NEUROANATOMY AND FUNCTIONAL NEUROLOGY, 10th edition, by Joseph G. Chusid, M.D. and Joseph J. McDonald, M.S., M.Sc.D., M.D. 360 pp. \$5.00 Lange Medical Publication, Los Altos, Calif. 1960.

This is an ideal text for busy practitioners, residents and interns, and especially those who are contemplating preparing for specialty board examinations, for it lends itself easily for review purposes. In clear, concise form and terminology, the material covers all phases met within the study of neuroanatomy and its clinical aspects. This is accomplished by excellent charts, photographs and diagrams.

The book is divided into four sections: Section I deals with the neuroanatomy of the central nervous system; Section II accomplishes the same for the peripheral and autonomic systems; and Section III covers nicely the principles of neurodiagnosis; Section IV deals with the disorders of the central nervous system. There is an outstanding appendix covering all phases of neurological diagnoses. Ten pages are devoted to the index so that it is quite useful. The list of references includes the most up-to-date texts and monographs. In fact, it is remarkable in its completeness in clinical neurology, neuroanatomy, radiology, neuropathology, neurophysiology, neuro-ophthalmology, electroencephalography and neurochemistry. All of these fields are concisely presented in the text. The book is quite functional.—*P. G. R.*



LENNEL I. WRIGHT, M.D.

Dr. Lennel I. Wright, 59, Wichita physician and former member of the faculties of Kansas University School of Medicine and Illinois University, died unexpectedly, March 10.

He was born February 6, 1902 at Benton, Kansas and was graduated from the University of Kansas Medical School in 1935. He served in the Navy during World War II as a medical officer.

His survivors include his widow, one daughter and his mother, as well as one brother and one sister.

THOMAS A. LOWERY, M.D.

Dr. Thomas Lowery, 86, Wichita, died March 2, at St. Joseph Hospital in Wichita.

He was born April 28, 1874 at Sparta, Tenn. and graduated from the University of Tennessee Medical School in 1899.

Dr. Lowery was a member of the Emporia Avenue Church of Christ.

Survivors include his wife, Mary, a daughter and a son, and one half brother.

JOSEPH COOK SHAW, M.D.

Dr. J. C. Shaw, 91, Topeka, died February 25 in a Topeka hospital.

He was born in Westmoreland County, Pa., October 23, 1869; graduated from Kansas Medical College, Topeka, in 1900, and was a veteran of World War I.

He practiced medicine in Holton, Kansas until 1919, when he moved to Topeka. He retired in 1933.

Survivors include his widow, five sons, a daughter, nine grandchildren and six great-grandchildren.

ROWE F. BISBEE, M.D.

Dr. Rowe Bisbee, 40, of Wichita, died Sunday, February 19, of a heart attack.

Dr. Bisbee was born November 18, 1920 at El Paso, Texas. He attended schools in St. Louis, Missouri, he studied at Yale University and received his M.D. degree from Washington University.

During the Korean conflict he was a medical officer with the 45th Infantry Division.

Dr. Bisbee was a member of the American Psychiatric Association.

Survivors include his wife, two daughters, one son, his father, two brothers, two sisters and one step-sister.

IRA I. SMITH, M.D.

Dr. Ira I. Smith, 84, a former mayor of Atlanta, Kansas, and for many years the community's physician, died February 24.

Dr. Smith was born April 21, 1876 at Whitestown, Indiana. He was preceded in death by his wife and their only son. He was a member of the Atlanta Methodist Church, and a graduate of the Ensworth Medical College of St. Joseph, Missouri, in 1913.

The survivors include two brothers, three sisters, four grandchildren and four great-grandchildren.

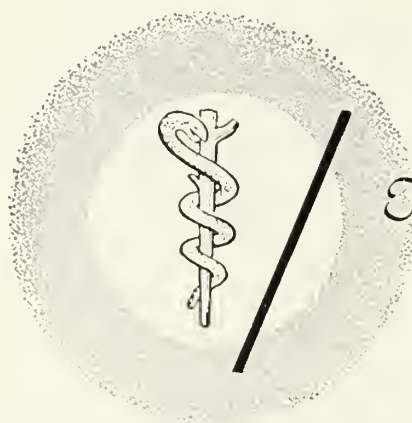
NOBLE P. SHERWOOD, M.D.

Dr. Noble Sherwood of Lawrence, 78, died at Watkins Hospital in Lawrence on February 21.

He was born in 1882 in Greenfield, Indiana and was graduated from the University of Minnesota in 1924.

He was Professor Emeritus and Chairman Emer-

(Continued on page 205)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

RON KULL—IN KANSAS

Every once in awhile I'm tempted to write a brief for socialized medicine—to give visual proof that the American Medical Assn. is dedicated only to the cause of pushing medical costs still higher, without regard for suffering and misery of humanity.

As the feller says, "everybody knows" that the AMA is responsible for severely limiting the number of doctors in order to assure each medic will attain at least one Cadillac by age 30. Also, "everybody knows" that doctors individually and collectively are money-grabbers, fee splitters, self-protectors and self-glorifiers.

The thing that stops me from writing such a diatribe is my personal experience with the medical profession.

Perhaps this too is a plot of the AMA to show the public through me, but I've been amazed at the patience, knowledge, thoughtfulness—and, most important, the inexpensiveness of the doctors who treat our ills. We keep bracing ourselves for the verification of all the awful traits we hear doctors accused of, but they've yet to come.

Since my wife, compared to some, is a rank amateur in the art of having children, she's never been able to have one even approximately close to working hours. But yet, the obstetrician hasn't missed getting there yet. And at a most reasonable cost.

Our pediatricians (it requires more than one sometimes during the sieges of sniffles, scrapes and lacerations) have been gems. Our general practitioner has been so kind he makes me feel inadequate.

Once, when we had to take one of the boys to a specialist for a minor operation, we braced ourselves. This was it. Now we were in the big league of the game. To our surprise, the specialist's fee would hard-

ly have covered the cost of reframing all his diplomas.

Since our dentist apparently has devoted the non-professional portion of his life to making me feel inadequate on the golf course I wouldn't want to comment on him, one way or another, except to say that in my opinion dentists are lucky at golf and lousy at bridge.

I wouldn't pretend to be an expert on the ramifications and counter ramifications of socialized medicine, but I think those who're pushing it as a means of getting back at the doctors are out in left field.

They're seeking to punish a majority for the transgressions of a minority. Because it's the minority of the doctors that gives the doctors a bad name, and it seems the AMA is unable to do much about this.

It's doctors like the one who arrived too late to help my grandfather after he'd died and then made the sole remark that "you'll have to pay for this call, anyway," that give the advocates of socialized medicine ammunition.

If other doctors could take some of that wide adhesive tape they use and apply it liberally to mouths of guys like that, a good part of the troubles of the medical profession would be over.—*Topeka Daily Capital-Journal*, March 5, 1961.

HAPPY PROBLEM

The Journal of the American Medical Association reports that by the end of this century, life expectancy of 120 years may be common, because of scientific advances.

In this decade, people are living longer, fewer deaths result from disease and the nation is the healthiest it has ever been.

A few decades ago men and women were old and tired when they reached what we now call "the prime of life."

Childbearing, the washboard, broom and mop, cooking on a stove that had to be fed wood or coal, sewing on a machine that must be operated manually, and helping with the chores, took their toll of a woman and when she reached 40, she'd had it.

Men too, worked with their backs for those were the days before the push-button and electric switches.

Medicine has made longer life possible. People take care of themselves; medically, they are pampered. New drugs have stamped out disease that use to kill people off like flies. Medicine and the family doctor have diminished the mortality rate in babies and children.

A lower death rate has resulted in a greater population that lives longer and healthier. And if the life expectancy reaches 120, problems will tag along with it.

Where will that many people go, when already crowded living conditions exist! Where will more people find jobs, when unemployment is prevalent now?

Water, too, must be taken into consideration. In many areas right now, cities are scratching around trying to find enough water to satisfy an increased population that uses many times over the water it use to before the days of the private swimming pool, automatic washer, air conditioner and many other modern devices. Cities and other areas will have to find another source of water if everyone is to bathe regularly.

A longer, healthier life is something to anticipate. But not if your ears are dirty, your family is hungry and you've no place to sleep.—A.M.—*El Dorado Times*, February 28, 1961.

DOCTOR SUPPLY FALLING BEHIND

Last year the 81 accredited medical schools of the nation turned out 7,081 new doctors, which was only 104 more than in 1955. But the United States had gained 10 million population during the five-year period.

There are now only 132 doctors for 100,000 people. This is regarded as a minimum. Yet plans to hold to this minimum ratio by stepping up doctor graduates in proportion to population increase are not yet even in the planning stage.

In five more years medical schools will need to graduate doctors at the rate of 7,751 per year to hold the ratio. By 1980 we will need 10,295 graduates annually.

During recent years several new medical schools

have been opened and some of the old ones have expanded their facilities. But an estimated 37 new schools will be needed to keep the pace. None of them is now materializing.

For a time there was hope that medical graduates from other nations might meet the need. But medical and hospital authorities now require these aliens to pass American examinations to meet our medical standards. More than a fourth of them flunked one recent examination. An even larger proportion of foreign doctors taking overseas examinations to determine eligibility to come to America are not passing. While we now have 10,000 foreign doctors and interns active in the country, that source of supply is drying up.

There is to be no substitute for American graduates of American medical schools doctoring the American people. And we had better be getting at the job of bringing our training facilities up to need.—*Wichita Evening Eagle and Beacon*, March 3, 1961.

Obituaries

(Continued from page 203)

itus of the Department of Bacteriology at the University of Kansas.

MELVIN C. MARTIN, M.D.

Dr. Melvin Martin, 73, retired Newton physician and former Harvey County coroner, died February 23.

He was born in 1887 at Kendalville, Kansas. Dr. Martin was a graduate of Kansas Medical College, Topeka, in 1913.

Good news for 40 million Americans who now own Series E and H bonds: the interest rate has been raised one-half per cent since June 1, 1959, on all bonds outstanding.

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Tuberculin Skin Testing

In Two Newton, Kansas Schools— A Preliminary Report

FRANCIS N. LOHRENZ, M.D., *Marshfield, Wisconsin;*

DALE GRISWOLD, M.D., and C. O. TOMPKINS, M.D., *Newton, Kansas*

YEARLY TUBERCULIN skin tests in two Newton, Kansas elementary schools have been performed for the past three years. The primary aims were: (1) to evaluate the exposure rate of tuberculosis in what was considered a susceptible area, (2) to use an effective case-finding technique, (3) to educate children, physicians, nurses, teachers, public school officials and lay members of the Harvey County Tuberculosis and Health Association who participated in the testing, and (4) to develop effectively one aspect of preventive medicine among actively practicing physicians.

Material and Methods

Tuberculin skin tests have been performed in the Lincoln and Sunset Elementary Schools during the period 1957 through 1959. Each child was required to obtain parental consent. In 1957, the Vollmer patch test was applied. In 1958 and 1959, the intermediate strength (.005 mgms.) intradermal skin test with purified protein derivative (PPD) was used (furnished by the Preventive Medicine Division of the Kansas State Board of Health). Children who had positive skin tests and their contacts were asked to return for follow-up to their family physician. In 1957, the kindergarten and 1st grade children of both schools were tested. In 1959, kindergarten, 1st, 2nd and 3rd grade children were given skin tests. Since the population status remained much the same, most of those previously negative were retested yearly.

The tests were read in 48 hours by one of the testing physicians. The total transverse measurement in millimeters of erythema and induration was recorded. A positive reaction was one in which the in-

A yearly tuberculin skin testing program among school children in two Newton, Kansas elementary schools is described. The general acceptance to the testing program was good. Efforts to continue each child's relationship with the family physician for follow-up was instrumental in obtaining cooperation of all physicians, public health personnel, school officials and teachers in a preventive public health effort was demonstrated.

duration measured 5 millimeters or more. All negative reports were sent by mail to each parent. On all positive reports, parents were notified by mail from a member of the testing group (under the auspices of the Harvey County Tuberculosis and Health Association). Accompanying the report was an authorized slip to get a chest x-ray and repeat tuberculin skin test at no cost. The positive reactor's family physician was

notified in preparation for the appearance of the child and family. A follow-up slip regarding contacts and their status was to be returned by the family physician to one of the members of the testing group. At the request of the family physician, all contacts could have chest x-rays taken by his authorization. The fee for these was minimal at a previously fixed rate paid by the local tuberculosis and health association. In 1959, certain families were skin tested in the home. The school nurse arranged for appointments to have skin testing done. Her findings regarding any known active or previously active cases were correlated with information from the city nurse, the county health nurse, and county physician.

Appropriate films about the purpose of the tuberculin test were presented to the Parent-Teacher's Associations of both schools two weeks before the requests for consent were given out. It was hoped through the mutual interest of all concerned to institute an accurate follow-up program. It was the specific aim to keep the total program small, but to involve a susceptible group. It was planned that skin testing with follow-up responsibilities could be continued on a yearly basis to finally include the kindergarten and all six grades in each of the schools tested.

Results

Table 1 shows the number of requests sent out and actual skin tests given in the two schools.

In 1959, 37 household contacts were found. Of these, 27 had negative skin tests. Three were not tested. Of the seven with positive tuberculin skin tests, four persons previously knew of positive reactions to intradermal material, and their chest x-rays had been normal recently. Three others could not be followed further.

There was one possible converter in the group tested so far. A Vollmer patch test on this child was negative in 1957. An intradermal skin test was positive in 1959. A chest x-ray on the child was normal. All family contacts showed negative skin tests.

Discussion

The only active case of tuberculosis discovered completed 18 months of isoniazid therapy with clearing of hilar infiltrate and lymphadenopathy. She is being followed by her physician. Among contacts, no active cases have been found during the three years of the study.

(Continued on page 216)

TABLE 1

| | 1957 (Vollmer) | 1958 (Intradermal) | 1959 (Intradermal) |
|------------------------|-------------------|-----------------------|-----------------------|
| Lincoln | | | |
| Requests | 99 | 146 | 178 |
| Skin tests given | 72 (73%) | 103 (70%) | 127 (71%) |
| Sunset | | | |
| Requests | 66 | 83 | 149 |
| Skin tests given | 56 (85%) | 75 (80%) | 119 (79%) |

The percentage of parents giving consent was the same even when the more reliable intradermal test was substituted for the Vollmer patch test.

TABLE 2

| | Positive Skin Tests | CHEST X-RAY | Follow-Up CLINICAL PICTURE |
|--------------------------|---------------------|---|--|
| 1957 (Vollmer) | 3* | Negative | None suggesting disease |
| 1958 (intradermal) | 8 (4.5 %) | 5 negative 2 "suspicious" 1 no x-ray | 1 (lymphadenopathy, hilar infiltrate, treated for primary tuberculosis) |
| 1959 | 5 (2.03%) | 4 negative 1 previous primary disease | No new cases with clinical picture |

The number of positive tuberculin skin tests and evaluation of these is shown in Table 2.

* Negative by intradermal test in doctor's office.

Rupture of Stomach

Congenital Agenesis of Gastric Musculature With Spontaneous Rupture

MOHEB A. S. HALLABA, M.B., Ch.B.*; RUSSELL A. NELSON, M.D.;
BERT E. STOFER, M.D., and LEO P. CAWLEY, M.D., *Wichita, Kansas*

PERFORATIONS OF THE STOMACH in infants and children have been reported up to the adolescent period. Those of the neonatal period are especially interesting because of the high mortality, the difficulties of diagnosis and the recent successful surgical repair of a previously invariably fatal disease.

The purpose of this paper is to report 3 cases of

Three cases of congenital muscular defect of the gastric wall are presented. One was operated upon and survived, the twenty-second in the literature. All cases reported since 1950 are briefly reviewed in two tables. Our third case shows that muscular defect of the gastric wall may be compatible with life. Causes of gastric perforation are discussed. Early diagnosis and laparotomy are emphasized.

gastric perforation; one was diagnosed during life and survived gastric resection.

Report of Cases

Case 1. A full term negro female infant was delivered by Cesarean section after an unsuccessful trial labor. The infant's cry was delayed and cyanosis was present. Resuscitation measures improved skin color and respiration. Initial physical examination revealed an infant weighing 2,400 Gm. and measuring 50 cm., with multiple areas of hyperpigmentation and port-wine hemangiomas of the skin. At 3 days abdominal distension developed and was followed in one hour by refusal of feeding. Distention progressed and a roentgenogram of the abdomen two hours after onset disclosed pneumoperitoneum and absence of gastric gas bubble (*Figure 1*). Total and differential leukocyte count, and hemoglobin were normal. A diagnosis

of intestinal perforation, probably gastric, was made and a laparotomy performed. At surgery a perforation of the stomach measuring 2 cm. was found on the anterior surface near the greater curvature at the fundus. The edges were necrotic but not bleeding. The size of the perforation and the extent of associated necrosis required an extensive gastric resection. About two-thirds of the stomach was removed. The baby was discharged at 14 days of age in good condition, weighing 2,493 Gm. Twelve months after the operation, she was well, but her weight and height were below the levels usually observed at that age.

The specimen of stomach measured 3 x 2 cm. and

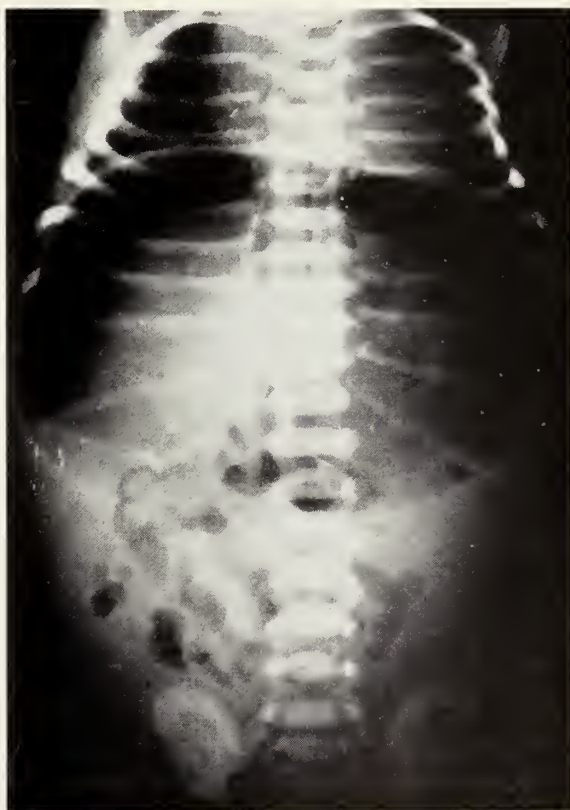


Figure 1. Upright roentgenogram of abdomen showing pneumoperitoneum and absence of gastric air bubble.

From the Wesley Research Foundation, Inc., and the Departments of Pathology and Pediatrics, Wesley Hospital, Wichita, Kansas.

* Assistant Resident in Surgery, University of Kansas Medical Center, Kansas City, Kansas.

was elliptical in outline with a central defect 2 cm. in diameter. The serosal surface was smooth and showed mottled hemorrhagic discoloration. The wall was less than 1 mm. in thickness and was much thinner near the defect. The mucosal surface exhibited the



Figure 2. Low power photomicrograph along edge of gastric perforation showing necrosis, hemorrhage and loss of muscularis bordering the perforation. H. & E., $\times 20$.

usual rugal folds. Microscopic examination of area adjacent to defect revealed hyperemia and edema of submucosa and scattered inflammatory cells. The muscle coat was absent over a short distance near the necrotic border (Figure 2).

Case 2. A 25 year old white multipara after an uneventful pregnancy spontaneously delivered a male in-

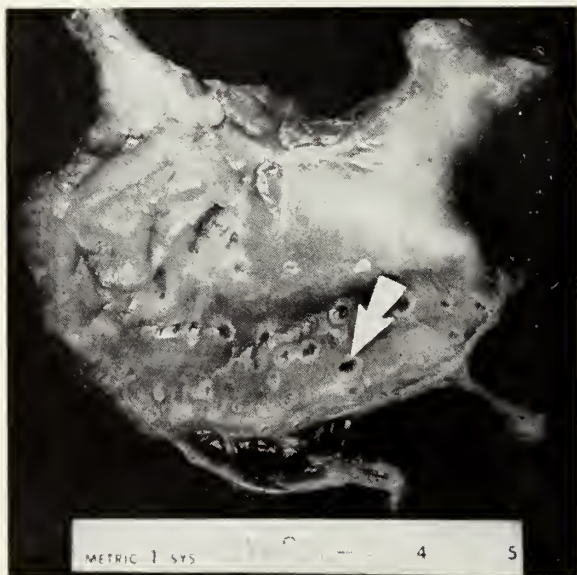


Figure 3. Photograph of gross specimen from case 2 showing multiple areas of thinning of the wall. Site of perforation is marked by arrow.

fant. The baby was apparently well until the morning following delivery when he became cyanotic. The cyanotic spells were intermittent with rapid and labored respiration. The heart sounds were muffled and the rate was 156 per minute; no murmurs were heard. The radial and femoral pulsations were readily palpable. A few rhonchi were heard at the base of both lungs. An electrocardiogram revealed marked left axis deviation and sinus tachycardia. A radiogram of the chest revealed generalized cardiac enlargement, increased pulmonary vascularity, and possible incomplete expansion of the lungs. The clinical diagnosis was congenital heart disease with heart failure. The infant failed to respond to medications, and remained cyanotic in spite of oxygen administration. His respiration became shallower and ceased on the third neonatal day.

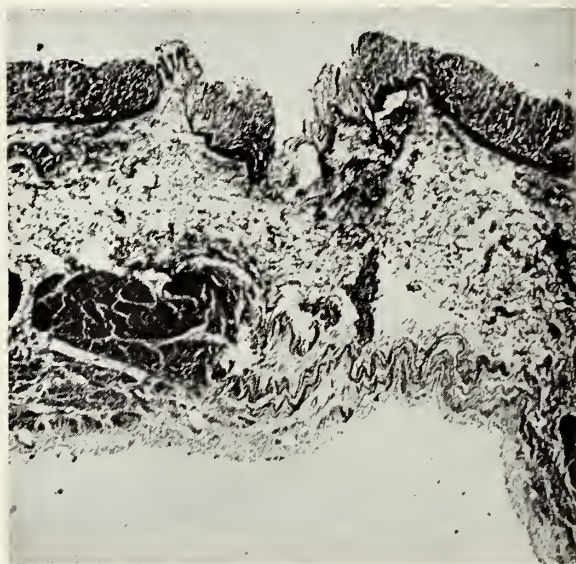


Figure 4. Photomicrograph of gastric perforation from case 2. Note loss and atrophy of musculature beneath and bordering the non-inflammatory ulceration of mucosa. H & E., $\times 150$.

At autopsy the infant measured 49 cm. in length and weighed 3,550 Gm. Marked cyanosis of the lips and fingernails, dependent hypostasis, and abdominal distension were present. The pertinent findings were limited to the cardio-respiratory system and stomach. The lungs were markedly congested with scattered areas of subpleural hemorrhages. The heart was enlarged (26 Gm., normal 17 Gm.) and was associated with infantile coarctation of the aorta. The stomach showed multiple ulcerations ranging from 1 to 4 mm. in diameter that involved the entire wall, chiefly on the greater curvature (Figure 3). One of them had perforated the posterior wall along the greater curvature.

Histologic sections at the edge of the gastric perforation showed partial or complete absence of the muscularis (*Figure 4*). The overlying mucosa was defective and an accumulation of slightly basophilic material was present in the submucosa but no inflammatory cells were found. Masson stain showed focal thinning and absence of the muscular layers. No evidence of peritonitis was present.

Case 3. A 5 year old white girl was admitted to the Emergency Room in severe shock and died within 5 minutes. Earlier in the day her physician had diagnosed tonsillitis and treated her with penicillin intramuscularly. For the previous 12 hours there had been increasing abdominal distention and fever. She was mentally defective, and unable to walk or talk. The salient physical findings were abdominal distension and a fever of 100° F.

At autopsy, the abdominal cavity contained 200 ml. of green fluid that had a sour odor. The omentum was focally thickened by deposits of calcium and the tail of the pancreas beneath the stomach was inflamed and

gastric perforations disclosed focal absence and thinning of the circular muscular layer (*Figure 6*).

The mucosa was intact but was ulcerated as sections closer to the perforations were examined. Masson and Luxol Fast Blue stains showed loss of the muscularis



Figure 6. Photomicrograph of edge of lesion in stomach of case 3. Note marked diminution of musculature in area nearest ulceration. Masson, $\times 100$.

and decrease in the number of ganglion cells near the perforations. Advanced congestion, focal hemorrhage and lymphocytic infiltration were associated. Tissue from the tail of the pancreas disclosed superficial pancreatitis. Elsewhere the pancreas was normal.

Discussion

Gastric perforation within the first two weeks of life is an uncommon disease entity. Siebold is credited for publishing the first report of this condition in 1825, and Leger for the first successful surgical repair in 1950. In the last decade, between 1950 and 1960, 84 cases have been reported (*Tables I and II*) with an over-all mortality of 75 per cent. Only 19 were reported prior to that period bringing the total to 103 cases as of this date.

From *Tables I and II* it can be seen that males predominate (51 to 31). The incidence appears higher in negroes (38 to 24) although no race was mentioned in 22 cases. Approximately half of all reported cases had a history of obstetrical complications including prolonged labor, breech presentation (2), twin deliveries (5), toxemia (3), polyhydramnios, precipitate delivery, uterine inertia and premature rupture of membranes. Complications of delivery included forceps (2) and Cesarean section (4). Complications prior to or during delivery are unusually high and appear far out of proportion to the normal expectancy of complications. Maternal complications included rheumatic heart disease, chronic nephritis, Raynaud's disease, carcinoma of the breast, syphilis and diabetes mellitus. Erythroblastosis was mentioned in one case.



Figure 5. Photograph of ulcerated stomach. Note multiple ulcerations of the upper portion of the stomach (posterior wall of the stomach).

edematous. The stomach revealed multiple perforations of the posterior wall high on the greater curvature (*Figure 5*). Elsewhere the stomach was normal. Except for pleural effusion and moderate compression of both lungs, no other significant abnormalities were present.

Histologic examination of the margin of one of the

TABLE I
OPERATED CASES REPORTED DURING THE PERIOD OF 1950-1960 (60 CASES)

| <i>Author and Year</i> | <i>Race</i> | <i>Sex</i> | <i>Day of Onset</i> | <i>Size and Site of Perforation</i> | <i>Etiology</i> | <i>Result</i> |
|-------------------------------|-------------|------------|---------------------|--|--|---|
| Gottlieb et al, 1950 | N | M | 2 | 3 cm. anterior wall, greater curvature | Ulcer. Intracranial hemorrhage from tentorial tear | Died |
| Leger et al, 1950 | N | F | 6 | 1.25 cm. greater curvature, anterior wall | Acute ulcer | Survived |
| Ross et al, 1951 | W | M | 3 | 4 cm. greater curvature near cardia and 1 cm. anterior wall near pylorus | Muscle defect | Survived |
| Kellogg et al, 1951 | W | M | 4 | 2.5 x 2 cm. posterior wall, greater curvature | Trauma (nasogastric tube) | Survived |
| Lemak, 1951 | ? | M | 4 | Posterior, greater curvature | Acute ulcer | Died |
| Beattie, Bohan, 1952 | N | M | 2 | Anterior, greater curvature | ? Ulcer | Died |
| Sanford, McLendon, 1952 | W | F | 3 | 3 mm. anterior, lesser curvature, prepyloric | Acute ulcer | Survived |
| Green, Gose, 1953 | W | F | 1 | 1 cm. anterior, mid greater curvature | ? Etiology | Died |
| Stein, Wright, 1953 | N | M | 2 | 2 cm. greater curvature | Acute ulcer | Died |
| | N | M | 3 | 1 in. fundus, greater curvature | ? Etiology | Died |
| | N | F | 2 | 5 mm. greater curvature | ? Trauma | Died 5th p.o. day from intestinal obstruction |
| Braustein, 1954 | N | M | 3 | 5 mm. greater curvature | ? Anoxia | Died |
| Fomon et al, 1954 | ? | ? | 5 | 3 cm. proximal 1/3 greater curvature | Muscle defect | Survived |
| Northway et al, 1954 | N | F | 3 | 2 cm. x 2 mm. anterior wall | Idiopathic | Died |
| Arnold, 1955 | N | M | 3 | 2 cm. greater curvature, mid portion | Muscle defect | Survived |
| Mann et al, 1955 | ? | M | 5 | 3 cm. x 4 mm. anterior wall, greater curvature | ? Trauma | Survived |
| Vargas et al, 1955 | N | M | 2 | 2.5 in. greater curvature | Muscle defect | Survived |
| | ? | F | 2 | Greater curvature | Mural abscess, septicemia, subarachnoid hemorrhage | Died |
| | ? | F | 15 | Pylorus, anteriorly | Trauma (polyethylene catheter) | Died |
| | ? | M | 2 | ? Anterior tear | Acute ulcer | Reperforated, Died |
| | ? | F | 3 | Greater curvature, pyloric | Trauma | Died |
| | ? | M | 3 | Fundus, greater curvature | ? Etiology | Died |
| | ? | F | 3 | ? Size or site | Muscle defect | Survived |
| | ? | M | 7 | ? Size or site | ? Muscle defect | Died |
| | ? | M | 3 | ? Size or site | Muscle defect | Survived |
| | N | M | 3 | 2 x 2 cm. cardia, greater curvature | Gastromalacia | Died |
| Kiesewetter, 1956 | W | M | 2 | 1 cm. mid portion | Undetermined | Reperforated, Died |
| | ? | F | 12 | 2 cm. greater curvature | Undetermined | Died |
| | W | M | 2 | Lesser curvature 3 cm. from diaphragm | Undetermined, meningitis | Died |

TABLE I—Continued

| <i>Author and Year</i> | <i>Race</i> | <i>Sex</i> | <i>Day of Onset</i> | <i>Size and Site of Perforation</i> | <i>Etiology</i> | <i>Result</i> |
|-----------------------------|-------------|------------|---------------------|---|---|-----------------------|
| MacGillivray et al, 1956 .. | W | M | 2 | Anterior wall, from greater curvature to lower esophagus | Muscle defect | Died |
| Musser, 1956 | W | M | 5 | 3 cm. greater curvature | Pneumatic rupture | Died |
| Whittico, 1956 | ? | F | 2 | 1 cm. lesser curvature | Pneumatic rupture | Died |
| Abramson, Folston, 1957 .. | W | M | 2 | 1.5 cm. fundus, greater curvature | Muscle defect | Survived |
| Meyer, 1957 | N | M | 3 | 3 mm. anterior wall, pylorus | Acute ulcer | Eviscerated, Survived |
| | N | M | 3 | 2 cm. anterior wall, near greater curvature | Muscle defect associated with hemangiomas | Died |
| Moore, Chan, 1957 | N | ? | 5 | 1-2 cm. greater curvature | ? Etiology | Died |
| | N | F | 2 | 2.5 in. middle and lower third of greater curvature | ? Etiology | Survived |
| Castleton, Hatch, 1958 ... | W | M | 2 | 1.5 in posterior wall | Idiopathic | Survived |
| | W | M | 3 1/2 | 2.5 cm. greater curvature | Idiopathic | Reperforated, Died |
| | W | M | 4 | Greater curvature, pyloric | Idiopathic | Died |
| Magee, Keagy, 1958 | W | F | 7 | Lesser curvature near cardia | ? Etiology | Died |
| Hamrick, 1959 | ? | F | Birth | 4 cm. at cardia | Trauma (nasogastric tube) | Died |
| | ? | F | 3 | 2 cm. anterior wall, pyloric | ? Muscle defect | Died |
| Linkner, Benson, 1959 ... | N | F | 28 | 1 mm. antero-superior aspect, near lesser curvature | ? Etiology | Survived |
| | W | M | 5 | Cardia, greater curvature | ? Etiology | Died |
| | N | M | 5 | Anterior, lesser curvature | ? Etiology | Died |
| | N | F | 6 | Greater curvature | ? Etiology | Died |
| | W | M | 25 | Posterior wall | ? Etiology | Died |
| | N | F | 5 | 0.5 cm. anterior, prepyloric | ? Etiology | Survived |
| | N | F | Birth | Pylorus | ? Etiology | Survived |
| | N | F | 4 | Posterior wall | ? Etiology | Survived |
| | N | F | 1 | 2 mm. anterior, mid portion | ? Etiology | Survived |
| | N | F | 4 | Anterior, lesser curvature | Ulcer. Cephalhematoma | Died |
| | N | M | 1 | 3 cm. greater curvature | Intracranial hemorrhage | Died |
| | W | F | 4 | 1.5 cm. fundus, near cardia | ? Etiology | Died |
| | N | F | 4 | 3 mm. cardia, greater curvature | ? Etiology | Survived |
| | N | M | 6 | 5 mm. mucosal defect 2 cm. laceration serosa, fundus, greater curvature | ? Etiology | Survived |
| McCormick, 1959 | N | M | 9 | 1 cm. anterior, fundus | Trauma (gavage tube) | Died |
| | N | F | 4 | 2 cm. greater curvature, posterior wall of fundus | Acute ulcer | Died |
| | N | M | 4 | 4-5 cm. posterior wall towards greater curvature | Muscle defect. Trauma | Died |
| Ogilvy, Owen, 1960 | W | M | 4 | | Muscle defect | Died |

TABLE II
NON-OPERATED CASES REPORTED DURING THE PERIOD OF 1950-60
(24 CASES)

| <i>Author and Year</i> | <i>Race</i> | <i>Sex</i> | <i>Day of Onset</i> | <i>Size and Site of Perforation</i> | <i>Etiology</i> |
|----------------------------|-------------|------------|---------------------|--|--|
| Tudor, 1950 | W | M | 5 | 1.5 × 1.8 cm. greater curvature, cardia | Undetermined |
| Wright, Scott, 1950 . . | N | M | 25 | 2 cm. lesser curvature, pylorus | Acute ulcer |
| Johnson, 1951 | N | M | 3 | 3.5 cm. anterior wall, lesser curvature | Muscle defect |
| Ogur, Kolarsick, 1951 . | N | M | 2 | Diverticulum, greater curvature, cardia | ? Muscle defect |
| Ross et al, 1951 | W | M | 4 | 3 × 1.5 cm. greater curvature, cardia | Intramural hemorrhage with necrosis |
| Schlumberger, 1951 . . | W | M | 1 | 1.3 cm. posterior, greater curvature | Acute ulcer, bilateral intraventricular hemorrhage |
| Green, Gose, 1953 . . . | W | M | 3 | 2 mm. anterior wall | Secondary to duodenal atresia |
| Stein, Wright, 1953 . . | N | M | 5 | 1 cm. fundus | Trauma (E&J pressure machine) Possible muscle defect |
| | N | M | 4 | 2 mm. lesser curvature, pyloric | Acute ulcer. Mother had syphilis and preeclampsia |
| | N | F | 6 | 2 mm. posterior wall | Undetermined |
| Braustein, 1954 | N | F | 10 | 1 cm. greater curvature, cardia | Muscle defect, subarachnoid and right ventricular hemorrhage |
| | N | F | 2 | Near cardia | Muscle defect |
| | N | M | 3 | 2 cm. greater curvature, cardia | Muscle defect |
| | N | M | 22 | 3 cm. anterior, mid greater curvature | Muscle defect, focal all over |
| Griffin, Griffin, 1954 . . | W | M | 3 | Fundus | Muscle defect |
| Vargas et al, 1955 . . . | ? | M | 6 | Diverticulum, greater curvature | Muscle defect |
| | ? | M | ? | Fundus | Diffuse gastritis and necrosis, Septicemia |
| | ? | F | 4 | Punctate perforations, posterior wall, greater curvature | Trauma (polyethylene catheter) |
| Musser, 1956 | W | F | 1 | 3 cm. fundus | Trauma. Muscular defect |
| Meyer, 1957 | W | M | 4 | 1.5 cm. greater curvature | Muscle defect |
| Hamrick, 1959 | ? | F | 2 | 9 mm. and 3 mm. perforations antero-superior aspect | Idiopathic |
| McCormick, 1959 | N | M | 4 | 5 mm. anterior wall | Trauma (tracheal catheter) Muscle defect |
| | N | M | 2 wk. | 2.5 cm. fundus, greater curvature | Undetermined |
| Vermilya et al, 1960 . . | ? | M | 3 | Entire greater curvature | Idiopathic |

Relationship between obstetrical complications and perforation of the stomach in the newborn within the first two weeks of life is not clear in many cases. Obstetrical trauma has been listed as a possible etiologic factor by Russell and might be operative in the breech and precipitate deliveries, and twin pregnancies.

Thirty-five infants were under 2,500 Gm. Associated abnormalities included Mongolism (3), atresia of esophagus, duodenum or ileum (4), omphalocele (1), talipes equinovarus with gangrene of left foot (1), congenital diaphragmatic hernia (1), Meckel's diverticulum (1), coarctation of aorta (1), port-wine hemangiomas (1), multiple cysts of kidney (3), hydronephrosis (1), and spina bifida (1).

Pathologic lesions of the stomach varied between 2 mm. and 6 cm. in greatest dimension. Perforation was associated with complete or partial bowel obstruction in 5 cases. In those cases where the location of the perforation was defined, the greater curvature was involved 48 times, the lesser 9, the anterior surface 24, the posterior 12, and the cardiac end 16 times against 10 for the pyloric and 6 for the mid portion.

In 10 cases post-mortem examination of the brain was done and 4 showed nothing of significance, 1 had meningitis, and 5 had intracranial hemorrhage (1 with tentorial tear). There is little support for a possible relation between intracranial damage and perforation of the stomach (*Quinn*).

The cause of perforation was ascribed to congenital muscular defect in 26 cases (31 per cent), to acute ulcer in 13 cases (15.4 per cent), and to trauma (polyethylene tube, gavage, intubation for tracheal suction) in 11 cases (13 per cent). Other listed causes included: anoxia, gastritis with necrosis, septicemia and mural abscess, and adrenal stress syndrome (*Green and Gose*). Thirty cases (34.3 per cent) were classified as idiopathic or of undetermined etiology. Most cases, however, did not have tissue diagnosis and it is conceivable that congenital muscular defect was the underlying pathology.

The high incidence of perforations along the greater curvature is quite significant. We feel that spontaneous rupture of the stomach along the greater curvature suggests a congenital defect of musculature as first pointed out by Herbut in 1943, for the following reasons: (a) Developmentally the greater curvature is the result of faster growth (compared to the lesser curvature) of the dorsal border of the stomach. The fundus arises as a local bulge near the cranial end (*Arey*). Defects are more likely to occur in an area of active growth such as the greater curvature. Herbut postulated that lack of fusion of the anlage of the circular muscle layers was responsible for the muscle defect in the stomach wall. (b) Peptic ulceration is uncommon on the greater curvature (*Mann et al*), and (c) Overdistension of the intact stomach leads

to rupture along the lesser curvature, rarely along the greater curvature according to Aberg (Wolf). Although traumatic rupture by gastric tube apparently occurs more frequently at the greater curvature as exemplified by Vargas et al, the majority of cases never have had such tubes used. The three cases reported here appear to be examples of congenital defect of the gastric wall. Associated disorders such as port-wine hemangiomas in the first case, congenital heart disease in the second and mental retardation in the third, tend to support congenital defects of the stomach in these three cases.

There are apparently multiple as well as unknown causes for gastric rupture and in the following classification are listed the reported causes:

- A. Congenital
 - 1. Muscular defect
 - 2. Diverticulum
- B. Acquired
 - 1. Traumatic
 - a. Intubation and gavage feeding
 - b. Resuscitation with oxygen under positive pressure
 - 2. Inflammatory
 - a. Septicemia and intramural abscess
 - b. Gastritis
 - 3. Peptic ulceration
- C. Secondary to bowel obstruction
- D. Idiopathic

Musser rejects congenital defects as an etiologic explanation and believes that perforation is due to overdistension of the stomach by the use of oxygen with or without tight-fitting mask. He compares this condition to the rubber-bag phenomenon whereas periodic introduction and release of gas through a tube or diaphragm finally results in rupture of the bag. The interval between resuscitation and appearance of symptoms does not bear this out in most cases.

Defects of gastric musculature apparently may persist for some years, if one accepts their congenital origin, as exemplified by our third case. Of further interest is the decrease in number of ganglion cells near the area of perforation.

Whereas this condition is 100 per cent fatal in non-operated cases, surgical mortality is still unusually high (65 per cent) and is directly proportional to the time elapsed between onset of symptoms and diagnosis, and celiotomy. Our only hope of salvage is awareness of the incidence of this disease entity and early surgical interference.

References

1. Abramson, D. J., and Folston, M. J.: Gastric Perforation in the Newborn Infant, *A.M.A.J. Dis. Child.* 94:252-257 (Sept.) 1957.
2. Arey, L. B.: *Developmental Anatomy*, Philadelphia, 1950, W. B. Saunders Co., Publisher, p. 219.

3. Arnold, G. G.: Perforation of the Stomach in the Neonatal Period, *J. Ped.* 46:276-279 (March) 1955.
4. Beattie, J. W., and Bohan, K. E.: Perforation of Gastric Ulcer in Premature Newborn with Operation and Survival, *Am. Surg.* 18:1146-1149 (Dec.) 1952.
5. Braustein, H.: Congenital Defect of the Gastric Musculature with Spontaneous Perforation, *J. Ped.* 44:55-62 (Jan.) 1954.
6. Castleton, K. B., and Hatch, F. F.: Idiopathic Perforation of the Stomach in the Newborn, *A.M.A. Arch. Surg.* 76:874-881 (June) 1958.
7. Fomon, S. J., Lowe, G. H., and DeLeeuw, H.: Idiopathic Rupture of the Stomach in a Newborn Infant, *A.M.A. Am. J. Dis. Child.* 88:234-238 (Aug.) 1954.
8. Gottlieb, C., Chu, F., and Sharlin, H. S.: Perforation of a Gastric Ulcer Associated with Intracranial Hemorrhage in a Newborn Infant, *Radiology* 54:595-597 (April) 1950.
9. Greene, W. W., and Gose, D. F.: Perforation of the Stomach in the Newborn, *A.M.A. Am. J. Dis. Child.* 85:47-51 (Jan.) 1953.
10. Griffin, J. P., and Griffin, C. G.: Perforation of the Stomach in a Newborn Due to a Congenital Defect, *J. Indiana State M.A.* 47:619-621 (June) 1954.
11. Hamrick, L. C.: Gastric Perforation in the Newborn Infant, *J.A.M.A.* 171:411-414 (Sept. 26) 1959.
12. Herbut, P. A.: Congenital Defect in the Musculature of the Stomach with Rupture in a Newborn Infant, *Arch. Path.* 36:91-94 (July) 1943.
13. Johnson, C. M.: Ruptura Expontanea del Estomago en el Recien Nacido, *Bol. As. Med. Nac. Panama* 14:145-147 (May) 1951.
14. Kellogg, H. G., Ableson, S. M., and Cornwell, F. S.: Perforated Stomach in Newborn Infant, *J. Ped.* 39:357-362 (Sept.) 1951.
15. Kiesewetter, W. B.: Spontaneous Rupture of the Stomach in the Newborn, *A.M.A.J. Dis. Child.* 91:162-167 (Feb.) 1956.
16. Leger, J. L., Ricard, P. M., Leonard, C., and Piette, J.: Ulcere Gastrique Perfore chez un Nouveau-ne avec Survie, *Union Med. Canada*, 79:1277-1280 (Nov.) 1950.
17. Lemak, L. L.: Roentgenological Manifestations of Gastroduodenal Ulceration in the Newborn, *Am. J. Roentgenol.* 66:191-199 (Aug.) 1951.
18. Linkner, L. M., and Benson, C. D.: Spontaneous Perforation of the Stomach in the Newborn: Analysis of Thirteen Cases, *Ann. Surg.* 149:525-533 (April) 1959.
19. MacGillivray, P. C., Stewart, A. M., and MacFarlane, A.: Rupture of the Stomach in the Newborn Due to Congenital Defects in the Gastric Musculature, *Arch. Dis. Childhood* 31:56-58 (Feb.) 1956.
20. Magee, R. B., and Keagy, R. M.: Perforation of the Stomach in the Newborn, *Pennsylvania Med. J.* 61:1204-1206 (Sept.) 1958.
21. Mann, L. S., Kallen, I. A., Tomusk, A., and Friedman, F. P.: Rupture of the Stomach in the Newborn Infant with Survival, *Surgery* 37:969-972 (June) 1955.
22. McCormick, W. F.: Rupture of the Stomach in Children: Review of the Literature and a Report of Seven Cases, *A.M.A. Arch. Path.* 67:416-426 (April) 1959.
23. Meyer, J. L.: Congenital Defect in the Musculature of the Stomach Resulting in Spontaneous Gastric Perforation in the Neonatal Period, *J. Ped.* 51:416-421 (Oct.) 1957.
24. Moore, J. B., and Chan, L.: Spontaneous Rupture of the Stomach in the Newborn, *Surgery* 42:484-487 (Sept.) 1957.
25. Musser, H. H.: The Etiology of Rupture of the Stomach in the Newborn, *Ohio State Med. J.* 52:838-840 (Aug.) 1956.
26. Northway, R. O., DeLano, R. H., and Claytor, A. A.: Perforation of the Stomach in the Newborn Infant, *Surgery* 35:925-927 (June) 1954.
27. Ogilvy, W. L., and Owen, H. F.: Neonatal Rupture of the Stomach Due to Congenital Muscle Defect, *Canad. J. Surg.* 4:91-95 (Oct.) 1960.
28. Ogur, G. L., and Kolarsick, A. J.: Gastric Diverticulae in Infancy, *J. Ped.* 39:723-729 (Dec.) 1951.
29. Quinn, A. G.: Report of Two Ruptured Gastric Ulcers and One Ruptured Duodenal Ulcer in Three Newborn Infants, *South. M. J.* 33:1171-1173 (Nov.) 1940.
30. Ross, M., Stanley, P., and Haas, C. M.: Neonatal Rupture of the Stomach, *J.A.M.A.* 146:1313-1314 (Aug. 4) 1951.
31. Russell, T. H.: Spontaneous Rupture of the Intestine in the Newborn, *Tr. New England Surg. Soc.* 22:286-294, 1939-40.
32. Sanford, M. C., and McLendon, P. A.: Rupture of the Bowel in a Newborn Infant, *Clinical Proc. Child. Hosp.* 8:165-172 (July) 1952.
33. Schlumberger, H. G.: Coexistent Gastroduodenal and Cerebral Lesions in Infancy and Childhood, *A.M.A. Arch. Path.* 52:43-66 (July) 1951.
34. Stein, F. E., and Wright, L. T.: Rupture of Hollow and Solid Viscera in the Newborn: an Analysis of Twenty-five Cases, *Harlem Hosp. Bull.* 6:32-57 (Sept.) 1953.
35. Tudor, R. B.: Peptic Ulcer in Infancy and Childhood, *Minnesota M.* 33:57-60 (Jan.) 1950.
36. Vargas, L. L., Levin, S. M., and Santulli, T. V.: Rupture of the Stomach in the Newborn Infant, *Surg., Gynec. and Obst.* 101:417-424 (Oct.) 1955.
37. Vermilya, G. D., McCue, F. A., and Cunningham, D. A.: Idiopathic Perforation of the Stomach in the Newborn, *Virginia M. Monthly* 87:202-204 (April) 1960.
38. Whittico, J. M.: Perforation of Duodenal Ulcer and Rupture of Stomach, *A.M.A. Arch. Surg.* 73:179-182 (July) 1956.
39. Wolf, N. J.: Subcutaneous Rupture of the Stomach: Review of the Literature and Report of a Case, *New York State J.M.* 36:1539-1544 (Oct.) 1936.
40. Wright, L. T., and Scott, B. E.: Perforated Gastric Ulcer in Newborn Infant, *J. Ped.* 37:905-908 (Dec.) 1950.

Tuberculin Skin Testing

(Continued from page 208)

The percentage of positive reactors is slightly higher than that reported over a 10 year period in Kansas City Schools by Wood, Furcolow and Willis. The higher percentage in 1958 (4.5 per cent) is probably best explained by the use of some second strength skin testing material causing a few non-specific positive reactions. It is felt that the 1959 percentage of 2.03 per cent reflects accurately the exposure rate on the group tested. The unreliability of the Vollmer patch test is verified by the negative intradermal tests present when repeated in the doctor's office on all "positive" reactors in 1957.

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References

Wood, Lawrence E., Furcolow, Michael L. and Willis, Myron J.: "An Evaluation of Tuberculosis Case Finding by Tuberculin Testing and Some Observations of Histoplasmin Sensitivity Among Young School Children." *Am. Rev. of Tub. and Pul. Dis.* 78:667-81, 1958.

Mass Photofluorography

An Analysis of Its Use for Detection of Cardiovascular Diseases

HARRY ALLEN, M.D., M.P.H.;* JAMES M. MOTT, M.D.;**
E. D. PULLIAM, B.S., M.S.P.H.,† and IRVIN FRANZEN, A.B., M.P.H.‡

SINCE 1948, the State Board of Health of Kansas, has conducted state-wide photofluorographic chest x-ray surveys. For the last seven years these surveys have been concerned with the total chest pathology that might be suspected by x-ray. Evidence of cardiovascular disease and malignancy have been included with the prime reason "tuberculosis case finding."

Lack of funds and personnel have previously made it impossible to conduct an organized follow-up of the suspected cases of heart disease, although each case is reported to the screenee's physician.

Good administrative practice dictates a periodic review of all ongoing programs. With this in mind, it seemed imperative that an analysis of this phase of the Heart Disease Control Program be made, in order to formulate recommendations concerning the effectiveness of mass photofluorography for the detection of heart disease and for the development of effective follow-up procedures.

Purpose of Study

1. To ascertain if it is possible to follow up suspected cardiovascular disease cases detected by photofluorographic surveys with the data that are available.
2. To suggest a feasible method of follow-up within the limits of staff and funds.
3. To evaluate this method of screening for the detection of heart disease.

Methods

1. All photofluorographic reports for 1958 listing suspected cardiovascular disease were checked to de-

termine the extent of follow-up done by private physicians upon initial referral.

2. A follow-up letter was prepared and sent to all physicians receiving reports of x-ray significant for

This is an analysis of 1958 photofluorography reports which showed evidence of cardiovascular disease and the follow-up reports from physicians of 797 cases in which physical examination confirmed evidences of diseases in about two-thirds of the total.

cardiovascular disease requesting data needed for analysis.

Results

During the period January 1, through December 31, 1958, there were approximately 119,972 chest x-rays made by the Division of Preventable Diseases of the State Board of Health. Of this total 1,359

TABLE I
Summary of Information Submitted Voluntarily by Physicians Based on Examinations Performed After Initial Referral of Cardiovascular Disease Suspects Detected by Photofluorography—Kansas, 1958

| Type of Cardiovascular Disease | Number | Per Cent |
|--------------------------------|--------|----------|
| Hypertension | 70 | 43.0 |
| Chronic Rheumatic | 19 | 12.0 |
| Arteriosclerosis | 19 | 12.0 |
| Valvular, Nonrheumatic | 3 | 2.0 |
| Other | 23 | 14.0 |
| Normal | 27 | 17.0 |
| Totals | 161 | 100.0 |

* At time of study was Assistant Director, Division of Health of the Aging, Kansas State Board of Health. At present time is Medical Consultant Chronic Diseases for Region 6 of the U. S. Public Health Service.

** Director, Division of Preventable Diseases, Kansas State Board of Health.

† Health Program Representative, Division of Health of the Aging, Kansas State Board of Health.

‡ Director, Division of Vital Statistics, Kansas State Board of Health.

TABLE II
*Type of Cardiovascular Disease by Sex and Age Group as Diagnosed
By All Physicians Who Submitted Diagnostic Reports—Kansas, 1958*

| <i>Type of</i> | | | | <i>Age Group</i> | | | | | | | <i>85 &</i> |
|-------------------------------|--------------|-------------|---------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|
| <i>Cardiovascular Disease</i> | <i>Total</i> | <i>Male</i> | <i>Female</i> | <i>15-24</i> | <i>25-34</i> | <i>35-44</i> | <i>45-54</i> | <i>55-64</i> | <i>65-74</i> | <i>75-84</i> | <i>OVER</i> |
| Total | 958 | 165 | 793 | 26 | 30 | 39 | 144 | 280 | 323 | 105 | 11 |
| Hypertension | 314 | 30 | 284 | — | 1 | 6 | 46 | 103 | 116 | 37 | 5 |
| Chronic Rheumatic | 89 | 15 | 74 | 3 | 9 | 6 | 13 | 24 | 25 | 9 | — |
| Arteriosclerosis | 173 | 50 | 123 | 1 | — | 1 | 13 | 41 | 80 | 33 | 4 |
| Valvular, Nonrheumatic . | 25 | 5 | 20 | — | — | — | 3 | 9 | 9 | 4 | — |
| Other | 78 | 24 | 54 | 5 | 2 | 5 | 17 | 20 | 26 | 3 | — |
| No Disease | 147 | 20 | 127 | 11 | 12 | 13 | 29 | 52 | 26 | 4 | — |
| No Examination | 132 | 21 | 111 | 6 | 6 | 8 | 23 | 31 | 41 | 15 | 2 |

cardiovascular disease suspects were detected for a yield of 113 cases per 10,000 x-rays. The private physician upon initial referral performed examinations and voluntarily returned reports on 161 cases, or 11.8 per cent of the 1,359 suspects. Thus, there remained 1,195 cardiovascular disease suspects, 88.2 per cent of the total, who either did not report to a physician as had been recommended, or the physician did not voluntarily submit any report to the State Board of Health.

An analysis of the 161 reports submitted by physicians upon initial referral of suspects was convincing evidence that this represents a reasonably sound source of follow-up data. The results, as depicted in Table I,

were the basis for the follow-up letter sent to the physicians. These letters were mailed to 448 physicians to request data on the 1,196 survey suspects on which no reports had been submitted. As a result of these letters, 73 per cent of the physicians contacted returned reports on 797 cases, representing 67 per cent of the suspects. Adding to this the 161 cases on which initial reports were received, follow-up information was obtained on 958 suspects, 70.5 per cent of the total number detected by the photofluorographic survey.

Table II shows the sex and age group distribution by type of cardiovascular disease diagnosed on the 826 suspects examined by physicians and the 132

TABLE III
*Type of Cardiovascular Disease by Reported Condition of Survey Suspects as Diagnosed by Physicians
Who Submitted Reports on Patients Whose Photofluorogram Showed Some
Type of Cardiovascular Abnormality—Kansas, 1958**

| Type of Cardiovascular Disease as Reported by Physician | Total | Reported Survey Findings | | |
|--|-------|--------------------------|-------------------------------|-------|
| | | CARDIAC ENLARGEMENT | SLIGHT CARDIAC ENLARGEMENT | OTHER |
| Total | 958 | 323 | 615 | 20 |
| Hypertension | 314 | 114 | 196 | 4 |
| Chronic Rheumatic | 89 | 35 | 54 | — |
| Arteriosclerosis | 173 | 68 | 101 | 4 |
| Valvular, Nonrheumatic | 25 | 14 | 10 | 1 |
| Other | 78 | 28 | 48 | 2 |
| No Disease | 147 | 37 | 103 | 7 |
| No Examination | 132 | 27 | 103 | 2 |

* All cases were detected by the 1958 Photofluorographic Survey, although some had also been detected and reported previously.

suspects that were not examined. Of the total examined, 82.2 per cent had some type of cardiovascular ailment, whereas only 17.8 per cent were reported as having no disease. The age group variations show that nearly 92 per cent of the examined suspects over 65 years of age were diagnosed as having a cardiovascular disease, compared with 78 per cent of those between 45-64 years and 52 per cent of the suspects under 45 years of age.

It is also noteworthy that 83 per cent of the suspects were females, which indicates that this is not a true representation of the population at risk; rather, it is concerned primarily with females 45 years of age or older. That the risk is greater for the male population has been demonstrated by cardiovascular mortality statistics which show a sex ratio of three to two, males over females. Therefore, conclusions on the basis of female experience would actually represent an understatement of the expected for the population over 45 years of age in general and for males over 45 years of age in particular.

Table III shows that even on photofluorograms showing only slight cardiac enlargements, 80 per cent of such suspects were diagnosed as having a heart disease when examined by a physician. Of those cases with more pronounced cardiac enlargements, 87 per cent were reported as heart disease victims by the examining physician. If the same holds true for 132 suspects that were not examined, it means that another 104 cardiovascular disease victims detected

by the photofluorographic method are not being given necessary medical attention.

Conclusions

1. It would appear that mass photofluorographic surveys are effective in detecting cardiovascular diseases and that every effort should be made to extend this effectiveness through an adequate follow-up program.

2. The effectiveness of mass photofluorography as a detector of cardiovascular disease could be increased through greater emphasis on reaching the population at risk, particularly a greater percentage of the male population.

3. Individuals participating in photofluorographic surveys, whose chest x-rays are interpreted as significant for possible cardiovascular disease, should be urged to seek medical advice and clinical evaluation, even though still symptom free, in order to obtain early diagnosis and prompt treatment.

4. A large percentage of the follow-up data can be obtained on the cardiovascular suspect from his physician by written request, but for those who did not see a physician there is a real need for a full-time health department employe, who, with the consent of the physician, could visit and encourage these suspects to seek medical supervision.

Authors' Note: As a result of this study additional funds and personnel have been received by the Kansas State Board of Health, making it possible to provide adequate follow-up on cardiovascular disease suspects detected through mass photofluorography.

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C.P.C. ~

Chest Pain, Dyspnea, Hypertension and Massive Edema in a Young Diabetic

CASE PRESENTATION

WE ARE DISCUSSING TODAY a 20-year-old white girl who was admitted to KUMC for the fourth time on November 27, 1958, complaining of pain in her chest and shortness of breath for two days. She had been a known diabetic since she was eight years old and had been treated with 16 to 20 units of insulin. During the five months preceding her admission she had had an increasing number of insulin reactions, and her mother had decreased the dosage. She had first been known to have albuminuria about eighteen months before admission, and she had had epistaxis intermittently for three months.

She was admitted here for the first time in 1946 in a diabetic coma. In 1956 she was admitted for the second time with the complaint of rapid deterioration of vision following an automobile accident, and at that time optic atrophy was discovered. On her third admission (November 7, 1958) she was semi-stuporous and edematous following an episode of epistaxis which lasted for 48 hours. At that time she was given oxygen and digitoxin, and fluids were restricted. She showed some improvement until November 25 when pain developed in her chest and left flank on deep inspiration; this was associated with shortness of breath and orthopnea.

Her family history was non-contributory except that her father was a diabetic.

The patient was a young white woman who was blind, markedly edematous, orthopneic and acutely ill. Ophthalmoscopic examination showed bilateral retinitis proliferans and retinal separation on the left. There was blood in the nares. The cervical veins were distended. Her chest expansion was poor, and there was decreased tactile fremitus in the left base posteriorly. Moist rales were heard throughout the chest,

with marked intercostal retraction on deep inspiration. The second pulmonic sound was greater than the second aortic sound. A grade II systolic murmur was heard along the left sternal border. The abdomen was distended and tender bilaterally, and a fluid wave was present. Deep reflexes were absent in the lower extremities.

Laboratory

The specific gravity of the urine was 1.011 with 2 plus albumin, 0.3 per cent sugar, occasional waxy casts and 5 to 10 pus cells per high power field. A test for occult blood in the urine was positive. A 24-hour urine albumin was 10.3 gm. The hemoglobin was 46 per cent; the hematocrit was 26.5 ml. The white count was 10,300 with 80 per cent polymorphonuclears, 18 per cent lymphocytes, and there was anisocytosis. The VDRL was negative. The bleeding time was 2 minutes and 53 seconds, and the clotting time was 9 minutes and 45 seconds. The blood urea nitrogen was 96 mg. per cent; creatinine, 5.6 per cent; fasting blood sugar, 45 mg. per cent. The serum carbon dioxide was 25 mEq L; sodium, 135 mEq; potassium, 5.1 mEq; chloride, 94 mEq; calcium, 4.0 mEq; and phosphorus, 3.5 mEq. The total serum protein was 4.35 gm. per cent; serum albumin, 2.03 gm. per cent; and serum globulin, 2.33 gm. per cent. The SG-OT was 8 units.

Hospital Course

The patient showed some improvement, but one day after admission she developed chest pain and pulmonary edema. A tender, erythematous area appeared on the dorsum of the foot. She appeared to be moribund for several hours, but showed some improvement until the next morning when she expectorated some blood-streaked sputum. On December 3 she had another episode of pulmonary edema after receiving a unit of blood, but she again responded to treatment. Her fluids were restricted to one liter per day. At the time of discharge on December 10, 1958,

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she was able to sleep with the head of her bed 40-60 degrees.

She was readmitted on January 4, 1959, following two days of vomiting and delirium. The physical findings were essentially the same as on the previous admission. The blood sugar at that time was 290 mg. per cent. On January 5 her temperature rose to 101.6 degrees. The dyspnea increased, and her neck veins became more distended. At 9:30 a.m. she had a convulsion and died.

Dr. Mahlon Delp (moderator): Are there any questions?

E. Rule Olson (fourth year medical student):* What was the last dosage of insulin that she was given?

Dr. Wu-Hai Tu (resident in medicine): She received 10 units of NPH insulin on the morning of death.

Mr. Olson: What were the last values of serum calcium, and what were the urine ketones?

Dr. Tu: The early ketones were negative; blood chemistries were returned after she died.

Mr. Olson: Did she have any characteristic breathing on admission?

Dr. Tu: She was orthopneic.

Mr. Olson: Were there any characteristic focal neurological findings in the terminal event?

Dr. Tu: No.

Kenneth Fendorf (student): Was a friction rub heard at any time?

Dr. Tu: No.

Mr. Fendorf: Did she have a positive Homan's sign at the time the tender area on the dorsum of her foot was noted?

Dr. Delp: No, she did not. Her legs were extremely edematous, and she had difficulty even moving them.

Betty Soo (student): What were the cholesterol values?

Dr. Delp: The highest cholesterol value was 328 mg. per cent.

Jack Irvine (student): Were doubly refractile bodies ever noted in the urine?

Dr. Tu: None were described.

Malcolm Shalet (student): What was her renal output on the fourth admission?

Dr. Delp: Her output averaged about 800 ml.; she had no oliguria.

Miss Soo: Was pigmentation noted at any time?

Dr. Delp: There was no unusual pigmentation.

Mr. Irvine: Were tuberculin or histoplasmin skin tests done?

Dr. Delp: None were recorded.

Andrew Nachtigall (student): What was her blood pressure during the last three admissions?

Dr. Delp: Her blood pressure was elevated, and the highest one recorded was 220/118.

Charles Tschopp (student): Did she ever have nausea, vomiting or diarrhea?

Dr. Delp: She had a great deal of vomiting, but she did not have diarrhea.

Mr. Tschopp: Did she have any focal twitching during her course?

Dr. Delp: What do you mean by focal twitchings?

Mr. Tschopp: Localized areas of muscle twitching.

Dr. Delp: On her last admission she was disoriented and had been having muscular twitching for 18 hours.

Dr. Wallace McKee (resident in medicine): On her first admission it was reported that she had had muscular twitching for which she was given diphenylhydantoin sodium.

Mr. Nachtigall: What was her temperature course during the last admission?

Dr. Delp: Her temperature was elevated only on the last day when it rose to 101.6 degrees; she had had no fever on her previous admissions.

Mr. Irvine: Was a uremic frost noted at any time?

Dr. Tu: No.

Dr. Delp: If there are no more questions, we will now see the electrocardiograms.

Electrocardiograms

Mr. Fendorf: The first electrocardiogram taken on November 9, 1958 (*Figure 1*) shows a normal sinus rhythm and a tachycardia of 100 with a P wave preceding each QRS complex. The axis is plus 30. There is only a small T wave in the limb leads. The precordial leads show a normal progression of the QRS complexes across the chest at V₃ and V₄. I interpret this tracing as a sinus tachycardia and probable heart strain.

A tracing taken on the patient's fourth admission

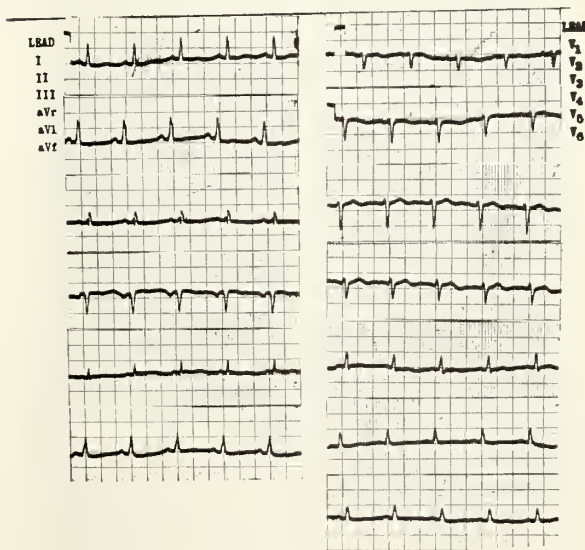


Figure 1. Electrocardiogram taken November 9, 1958.

* Although a medical student at the time of this conference in April, 1959, he, like the others referred to as students, received the M.D. degree in June, 1959.



Figure 2. X-ray taken on first day of the patient's fourth hospitalization.

shows an increased rate of approximately 140. The P waves preceding each QRS complex are slightly higher than on the previous tracing, and the axis is plus 60. There is a normal progression of QRS complexes across the chest leads at V_5 and V_6 . The T waves are somewhat higher than in the previous tracing and indicates more right heart pattern which may be compatible with right ventricular overload. I can not definitely say that this is a pattern of cor pulmonale.

An electrocardiogram on December 4 shows the chest leads shifted back slightly at about V_4 . There is no tachycardia, but otherwise this tracing is essentially the same as the first one.

Dr. Delp: May we have your comments, Dr. Dunn?

Dr. Marvin Dunn (cardiologist): The first tracing shows myocardial ischemia, but I do not believe that it would be interpreted as right heart strain as the taller amplitude of the T waves may merely be a manifestation of tachycardia.

Dr. Delp: May we have the x-rays, please?

X-rays

Mr. Shalet: The first x-ray taken on May 16, 1956, during the patient's second admission, shows no bony abnormalities. The transverse diameter of the heart is normal in size. Several areas of calcification in the hilar lymph nodes are seen, but otherwise I interpret this as a normal x-ray.

A film taken on November 10, 1958, shows transverse enlargement of the heart which is probably on the basis of left heart dilatation or hypertrophy. It is

difficult to determine which chamber is enlarged without a lateral film, but I assume that this is left heart enlargement. There is slight increase in hilar enlargement.

A film taken on the first day of the patient's fourth hospitalization shows transverse enlargement of the heart which may be of more significance than that of the previous film (Figure 2). Hilar markings are prominent bilaterally and radiate towards the periphery. There is no evidence of pleural effusion, and the costophrenic angles are clear. A middle lobe fissure is seen here which I interpret as an interlobar effusion. I interpret this film as transverse enlargement of the heart and pulmonary edema.

An x-ray taken one week after the fourth admission again shows enlargement in the transverse diameter of the heart and prominent hilar markings compatible with pulmonary edema. Patchy areas of infiltration are seen throughout both lung fields. I interpret this film as a bronchopneumonia superimposed upon pulmonary edema. There is blunting of the costophrenic angle and evidence of a pleural effusion on the right which was not seen on the previous films. I interpret these x-rays as enlargement of the heart, pulmonary edema, patchy bronchopneumonia, and a right pleural effusion.

Dr. Delp: Thank you. May we have your comments, Dr. Germann?

Dr. Donald Germann (radiologist): Basically this film shows the pattern of pulmonary edema with cardiac enlargement.

Dr. Delp: Is there any particular significance to the fact that the gutters are free?

Dr. Germann: That merely implies that there is edema of the lung rather than pleural fluid.

Dr. Delp: Thank you. May we have your differential diagnosis now, Mr. Olson?

DIFFERENTIAL DIAGNOSIS

Mr. Olson: Our case today concerns a 20-year-old white girl who was a known diabetic for twelve years. The age of onset is the criterion for classifying her as a juvenile diabetic. I can quickly rule out maturity-onset diabetes mellitus as a primary diagnosis because of the patient's age and the history of onset. Acute and chronic pancreatitis, hemochromatosis, injury, neoplasm, amyloid infiltration, and abnormal functioning of the pituitary can be excluded because of the lack of history. Because of the early onset and characteristics of our patient's symptoms it can be assumed that her disease was the common hereditary form of diabetes transmitted as a Mendelian recessive.

Juvenile diabetes has its onset either acutely (within 24 hours), rapidly (within a week), or gradually (within a month or more). It occurs most frequently around the ages of three, six or twelve years, corresponding to the growth spurts in a child. Sex incidence is equal, but the onset usually occurs earlier in

girls and is characterized by carbohydrate intolerance. There is often a period of decreased insulin tolerance, and as many as 33 per cent of these patients do not require any insulin at all for some time. Within three years, however, almost all of them are completely dependent upon it again. During the first five years complications of that disease include ketosis, sepsis, rapidly appearing cataracts, and skin lesions associated with cutaneous lipid deposition. Twenty-six per cent of the patients from ten to fifteen years of age develop neuropathy associated with loss of vibratory sense and decreased deep tendon reflexes. Although tuberculosis is not a common complication it occurs three to four times more often in diabetics and 16 to 20 times more often in teenage diabetics. After the age of 15 the complications are usually vascular, although there is often the association with the Kimmelsteil-Wilson syndrome when death occurs at an early age. At any time during its course, however, necrotizing papillitis may cause oliguria and rapid death. Although that rarely occurs it is usually associated with acidosis or a hypertensive episode. Our patient was a juvenile diabetic, blind, edematous, orthopneic and acutely ill. For 18 months she had had albuminuria, and she had had insulin reactions for about five months. She manifested some of the symptoms of diabetic nephropathy with hypertension, edema and proteinuria which obviously suggests the intracapillary glomerulosclerosis of the Kimmelsteil-Wilson type.

Chronic glomerulonephritis, amyloidosis, syphilis, lupus erythematosus, renal vein thrombosis and congenital kidney disease can be dismissed because of the negative laboratory values and the history. The patient showed correlated findings of retinopathy, decreased insulin requirements, mild anemia, hypoproteinemia and azotemia which is frequently associated with concurrent heart failure. On admission she had pulmonary edema and heart failure, and this was probably complicated by pulmonary infarction as indicated by the typical history and signs which could be compatible with cor pulmonale. I postulate that the embolus came from the legs because of the severe edema. She may have had a superimposed inflammatory disease of the lung. The blood sugar was 45 mg. per cent, and she probably was in borderline or frank insulin shock. Her blindness could have been caused by diabetic retinopathy with retinal separation. The first episode of pulmonary edema which occurred during her hospitalization may have been the result of another embolus; the second may have occurred as a result of the blood transfusion which was given in an attempt to mobilize some of the tissue water which was secondary to the hypoproteinemia. The procedure mobilized the water and increased the blood volume, and put her over the borderline into cardio-pulmonary decompensation.

She showed some improvement and was discharged only to return several days later with a history of

vomiting and delirium for two days. Her blood sugar at that time was 290 mg. per cent. Her physical findings were essentially unchanged. Apparently she was not in a diabetic coma, although there were no ketone bodies described to rule it in or out. Acidosis, however, is extremely uncommon in a patient with a damaged kidney. She was in cardiac failure. On the day following admission she probably had another pulmonary embolus, and I believe that she had acute right-sided failure at that time. The calcium value was low because there was low protein in the blood which is the carrying mechanism for calcium. The ionized calcium is actually of the most importance. Her final episode cannot be explained on the basis of too much insulin because that was not confirmed by the history. Aspiration could have occurred, although there is no definite history of it. Because of hypertension, convulsions, and diabetic vascular disease, I believe that death was caused by cerebral hemorrhage, which is a common termination of juvenile diabetes.

In summary, my diagnosis is juvenile diabetes associated with complications of nephropathy, neuropathy, retinal separation and diabetic retinopathy. Glaucoma, cataracts, skin lesions and tuberculosis may be other important complications, but these were not manifested here. I shall reluctantly rule out tuberculosis because there were no skin tests or x-ray findings of it, but it could have explained some of the complications seen here.

CLINICAL DISCUSSION

Dr. Delp: Thank you, Mr. Olson. What is your final diagnosis, Mr. Irvine?

Mr. Irvine: I believe that death was due to heart failure, although hypertensive encephalopathy, uremia or cerebral hemorrhage can not be ruled out because of the terminal event.

Dr. Delp: Mr. Nachtigall?

Mr. Nachtigall: I believe that pneumonia associated with heart failure was the cause of death.

Dr. Delp: Mr. Tschopp?

Mr. Tschopp: In my opinion she also died in uremia with congestive heart failure.

Mr. Fendorf: Because of the history of high blood pressure a cerebral vascular accident cannot be dismissed; however, she probably died in acute pulmonary edema.

Dr. Delp: Do you believe that convulsions could have precipitated the acute pulmonary edema?

Mr. Fendorf: Yes.

Dr. Delp: Mr. Nachtigall, how do you explain the patient's chest pain?

Mr. Nachtigall: The pain could have been the result of a pulmonary infarct.

Dr. Delp: Miss Soo?

Miss Soo: I believe it was pulmonary infarct.

Dr. Delp: Mr. Irvine?

Mr. Irvine: Chest pain and generalized tenderness are sometimes seen in cases of uremia.

Dr. Delp: Mr. Tschopp?

Mr. Tschopp: Pulmonary embolism is a possibility. She might also have had a pericarditis because of the azotemia.

Dr. Delp: Mr. Fendorf?

Mr. Fendorf: I believe that a pulmonary infarct was the cause of her chest pain.

Dr. Delp: Mr. Olson?

Mr. Olson: Pulmonary infarct probably caused the chest pain. As a diabetic she could have had a myocardial infarct, although her age was against that diagnosis despite her severe diabetes. She could have had tuberculosis which could explain the hemoptysis and some of the chest pain.

Dr. Delp: During the last six to eight weeks of her life the patient complained several times of pain in the chest and was seen in the emergency room with chest pain as the primary complaint. How do you explain that, Mr. Irvine?

Mr. Irvine: Pulmonary hypertension could have caused the pain.

Dr. Delp: How would she have developed pulmonary hypertension?

Mr. Irvine: There were indications that there was an increased second pulmonic sound which is indicative of some pulmonary hypertension. The pain may have been due to stretching of the bronchial vessels.

Dr. Delp: Mr. Tschopp?

Mr. Tschopp: On admission the patient had considerable enlargement of the heart which was probably left ventricular, and that may have been a manifestation of coronary insufficiency.

Dr. Delp: Mr. Fendorf?

Mr. Fendorf: Another possibility could be a neuritic type of pain due to a diabetic neuropathy.

Dr. Delp: Is there any predisposition toward the development of neuropathy in diabetics?

Mr. Fendorf: It is a common development in juvenile diabetics.

Dr. Delp: Are there any observable precipitating factors surrounding the development of neuropathy in patients with diabetes, Mr. Irvine?

Mr. Irvine: Twenty-three per cent of diabetic patients with glomerulosclerosis develop a diabetic neuropathy, but it develops in only five per cent of patients without diabetic intercapillary glomerulosclerosis.

Dr. Delp: Mr. Tschopp?

Mr. Tschopp: Malnutrition may be a possibility because many of these patients seem to be helped by thiamine.

Dr. Delp: Mr. Nachtigall, can you explain the patient's peculiar disorientation and delirium that was manifested for 18 hours before her last admission?

Mr. Nachtigall: I believe that it was due to cerebral edema secondary to hypoproteinemia.

Dr. Delp: Mr. Irvine?

Mr. Irvine: She could have had cerebral hypoxia, or she could also have had encephalopathy due to hypertension.

Mr. Tschopp: I would explain it on the basis of uremia.

Mr. Olson: She may have had some bleeding earlier in her course because of her hypertension, which is one of several reasons for diabetic patients developing delirium and vomiting.

Dr. Delp: No one has suggested the possibility of ammonia intoxication. How do you explain the epistaxis, Mr. Nachtigall?

Mr. Nachtigall: I believe hypertension was the background for it.

Dr. Delp: Miss Soo?

Miss Soo: Uremia may have been the basis for it. One theory states that the toxicity of the uremic products that tend to produce depression of marrow and increased capillary permeability is commonly found here.

Mr. Irvine: I believe it was the result of hypertension or uremia.

Mr. Tschopp: Hypertension is not a common cause of epistaxis but epistaxis is one of its manifestations.

Mr. Fendorf: Patients with damaged kidneys frequently have increased capillary permeability.

Mr. Olson: The patient may have been picking at her nose.

Dr. Delp: Trauma is probably the most common cause of epistaxis. What are your comments, Dr. McKee?

Dr. McKee: Trauma was definitely the cause of the patient's epistaxis, as she was continually picking at her nose. It was questionable whether she was having pulmonary emboli, but in the opinion that she probably was, a venal caval ligation was considered. On her first admission she was markedly anemic. It was impossible to increase her blood count, and that may have had a great deal to do with her final heart failure. The chest x-ray gave evidence of enlargement of the heart, and I believe her final episode was the result of heart failure. A convulsive death may occur from numerous causes.

Dr. Delp: Dr. Bolinger?

Dr. Robert Bolinger (internist): The acute episodes which the patient had experienced for several months were probably all pulmonary edema. She had hypoproteinemia and left ventricular failure almost the entire time. Apparently these episodes of pulmonary edema were misinterpreted by her mother as insulin reactions. Whenever an episode occurred in the hospital the mother would remark that the patient was having an insulin reaction. The blood sugar level was quite high, so I suggest that these episodes were typical pulmonary edema, and I believe that explains most of her so-called insulin reactions. Whether or not she died of uremia is not too well

indicated by the findings. A patient dying of uremia is usually considered to have a uremic or renal type of acidosis. Most of the time our patient's serum electrolytes showed a fairly normal acid-base balance and were not consistent with a renal acidosis. Her renal complications were those of hypertension and albuminuria which resulted in her death. There was good reason for the final convulsive episode. She had cerebral hypoxia most of the time, and there is the possibility that she had a hypoglycemic reaction because the blood sugar in that type of patient is usually unstable. The decrease in insulin requirement is characteristic of the late phases of renal disease in diabetes, but the reason is not understood. The laboratory evidence suggests that some of the nitrogenous products may have an effect similar to the synthetic hypoglycemics, and, in that respect, would potentiate insulin.

Dr. Delp: In 1956 the patient was seen here in the eye clinic where a diagnosis of optic atrophy was made. Do you believe that diagnosis was associated with the patient's involvement in an automobile accident in which she had become unconscious for two weeks?

Dr. Bolinger: I can not explain the diagnosis of optic atrophy. Rather, her picture was typically that of diabetic retinopathy, and there is a possibility that she may have been having diabetic retinopathy at that time. Cases of diabetic optic neuritis have been reported, but they are not common.

Dr. Delp: There is nothing in the ophthalmologist's report about retinopathy. He did report that she had optic atrophy, but there is no description of any other lesions in the retina. May we have your comments, Dr. Berry?

Dr. Maxwell Berry (internist): There are various theories regarding the development of neuropathy in diabetes. One theory involves the use of zinc in the preparation of long-acting insulins. That provoked criticism because it was believed that zinc in the insulin was the probable cause of the increased frequency of neuropathy. Some clinical investigators report that the heavy metal is the cause of the neuropathy. The improvement shown by patients treated with dimer-caprol and edathmil sodium was believed to be the result of the chelation of the heavy metal by the drugs. It was believed that these drugs interfered with some aspect of the metabolic cycle to the point where the central nervous system and the peripheral nerves obtained inadequate nutrition. It is my belief that vascular complications in diabetes are usually the result of inefficient and faulty management. However, some patients are refractory to management.

Dr. Delp: Our patient was put on insulin on her first admission here in 1946, and she was discharged from the hospital under good control. On a subsequent admission the staff made the diagnosis of "character disorder," and that is mentioned only because

it could have been a factor in the difficulties encountered in managing her diabetes. The patient apparently never accepted her diabetes, never learned anything about her disease, and never helped to control herself or to choose her diet. That was done entirely by her mother.

No one as yet has explained the patient's pain to my satisfaction, and I believe that pain in a 20-year old girl requires an explanation. May we have the pathology report now, please?

PATHOLOGICAL REPORT

Dr. T. J. Fritzlen (resident in pathology): The kidney was the organ of major interest, but I will first briefly review the other principal findings. There was fluid in body cavities in the following amounts: each pleural space, 300 ml.; peritoneal space, 500 ml.; pericardial space, 50 ml. There was pitting edema of the lower extremities and of the sacrum. There was slight diffuse atrophy and fibrosis of the pancreas. Microscopic sections revealed fairly normal islets and severe sclerosis in smaller arteries. There was slight hypertrophy of the left ventricle; the heart weighed only 315 gm. There was severe acute and chronic passive congestion of the lungs with focal hemorrhages in small areas of acute pneumonitis. There were no pulmonary emboli or recent or old pulmonary infarctions. There was focal atrophy in the occipital and frontal areas of the brain. The eyes were not examined, but there was demyelination of optic nerve fibers in the region of the chiasma. There were no areas of cerebral hemorrhage, or old or recent infarcts. There was simple cerebral atrophy, probably best explained on the basis of the head injury two years before death. There were large thickened intimal plaques in the aorta, and there was moderate intimal thickening in the coronary, cerebral, renal and mesenteric arteries. There were no grossly discernible areas of vascular occlusion or of marked narrowing. There was hyperplasia of the parathyroids and moderately advanced osteoporosis. There was an incidental finding of inactive and well calcified foci of histoplasmosis in pulmonary and hilar lymph nodes.

The gross examination of the kidneys showed a fairly smooth cortical surface without large scars. The cortices were only slightly thinned, to 4 to 5 mm. The only definite abnormality was an increased granularity of the cortices on section. The medullae were normal.

Microscopic examination of the kidneys (*Figures 3 and 4*) showed in the cortex tubular hyperplasia and dilatation, alternating with areas of atrophy and fibrosis. Some of the dilated tubules contained colloid casts. Every glomerulus showed evidence of disease and none of them were anatomically normal. The most common findings in the glomeruli were thickening of both the endothelial and epithelial layers of the capillary loops. Many showed extensive adhesions to

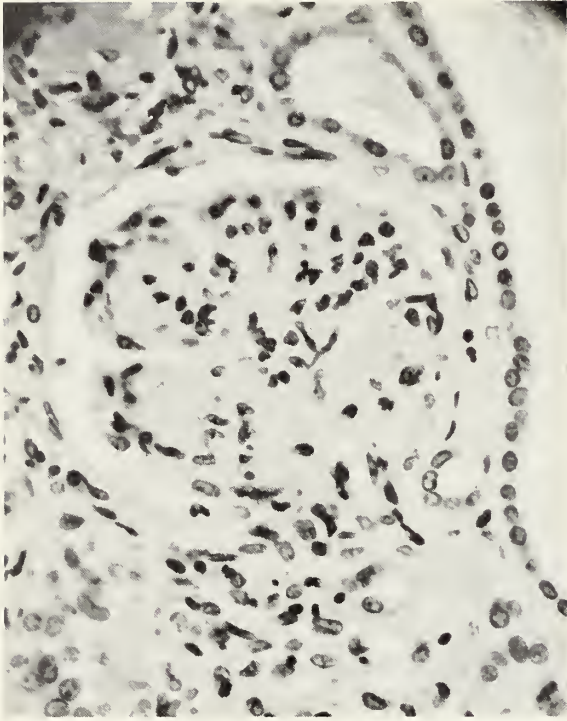


Figure 3. Photomicrograph illustrating multiple nodular hyaline thickening of the glomerular tufts.

Bowman's capsule with formation of "pseudo tubules" and epithelial crusts. Often these changes had progressed to complete fibrosis and hyalinization of glomeruli. There was occasional slight periglomerular fibrosis. So-called "hyaline-balls" or hyaline deposits in glomeruli were not found although many sections were examined and several special stains were used. Capillaries in relatively intact glomeruli often showed irregular aneurysmal dilatation. The arterioles had fairly advanced degrees of intimal thickening but did not show necrosis or other changes consistent with a malignant phase of hypertension. The tubular epithelium showed no specific abnormality. The medullae and papillae were intact, and there was no significant evidence of acute or chronic pyelonephritis.

Dr. Klionsky will discuss the significance of the autopsy findings.

Dr. Bernard Klionsky (pathologist): The major problem presented by this case clinically and pathologically is the differential diagnosis of the etiology of the nephrotic syndrome in a young patient with diabetes mellitus of long standing.

The pathologist has, in some respects, an easier problem than the clinician because such lesions as amyloidosis and renal vein thrombosis can be readily excluded and because morphologic criteria may be more exact than statistical ones. In this patient, the morphologic finding is of diffuse glomerulosclerosis. The problem is to distinguish between diabetic glomerulosclerosis and glomerulonephritis.

The lesion now called diabetic glomerulosclerosis was first described by Kimmelstiel and Wilson in 1936.⁴ They observed round, acellular hyaline masses in the periphery of the glomeruli of patients with long standing diabetes, hypertension and the nephrotic syndrome. The nodular masses are believed to obstruct the glomerular capillary, which dilates proximally, thereby permitting capillary leakage and resultant albuminuria. The nodular obstructive lesion in the glomerular tuft produces an elevation of the peripheral vascular resistance thereby producing hypertension. The initial observations have been repeatedly confirmed. Some confusion has arisen because the eponym has been applied to both the pathologic lesion in the glomerulus and to the resulting clinical nephrotic syndrome. Although the presence of isolated or multiple examples of the classic glomerular lesion is reported in 30 to 70 per cent of diabetic patients at autopsy,^{1, 5, 7} only about 10 per cent have involvement of sufficient numbers of glomeruli to produce the fully developed clinical syndrome. In approximately one-third of the patients in whom diabetic glomerulosclerosis is diagnosed clinically the autopsy reveals a different etiology of the nephrotic syndrome.^{5, 6} On the other hand, the process is more often missed than it is misdiagnosed.

The incidence of this syndrome tends to parallel the frequency and duration of diabetes in any sex

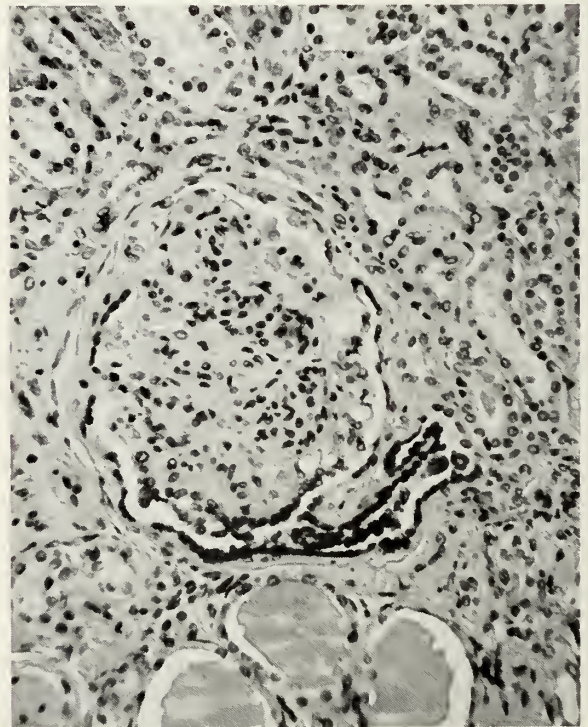


Figure 4. Photomicrograph demonstrating multiple focal adhesions between the glomerular tufts and Bowman's capsule. Pseudo-tubular proliferation of capsular epithelium is present.

or age group. The duration of diabetes is usually prolonged, ordinarily about 10 to 15 years. The syndrome is apparently unrelated to the severity of diabetes and may occur as a presenting complaint in individuals in whom clinical diabetes has not previously been recognized.^{1, 5}

The classic lesion provides at the present time the single best morphologic criterion for the diagnosis of diabetes. It is present more frequently and more prominently than is fibrosis and hyalinization of the islets of Langerhans in the pancreas.

The nodular peripheral hyaline ball of diabetic glomerulosclerosis must be differentiated from the similar appearing nodular lesion of membranous glomerulonephritis, Ellis type II.³ Differentiation is made on the basis that the glomerulonephritic lesion, as in this patient, is diffuse and involves all glomeruli. The silver stain, as Dr. Fritzlen has indicated, shows a concentric laminar pattern within the diabetic lesion, but a haphazard arrangement of reticulum fibers in the nodule of membranous glomerulonephritis. In this patient we interpret the morphologic evidence as favoring a diagnosis of chronic glomerulonephritis.

The similarity of the glomerular lesions in different diseases which result in the nephrotic syndrome reflects the basic similarity of the processes and the relatively limited patterns of histologic reaction to injury. The application of renal biopsies and of electron microscopy to the study of human renal disease is beginning to provide a better understanding of the pathogenesis of the various entities which lead to the nephrotic syndrome and to the pathogenesis of the disease.^{2, 3} Electron micrographs of normal glomeruli illustrate the mechanism of normal glomerular filtration. The endothelial cell has a permeable cytoplasm with multiple fenestrations. The basement membrane is 600 to 700 Angstrom units thick and may be the ultimate glomerular filter. The processes of the epithelial cells are called podocytes, the tips of which rest on the basement membrane. Podocytes of one epithelial cell may interdigitate with those of adjacent cells in such a way that the distance between them is about 70 microns. The current theories for the pathogenesis of the nephrotic syndrome demonstrate loss, thickening or destruction of the basement membrane or disruption of the podocytes with loss of the normal interdigitation. Either of these mechanisms would permit abnormal filtration of material from the glomerular capillary into Bowman's space. In glomerulonephritis such lesions have been demonstrated with fragmentation of the basement membrane permitting occasional direct apposition of endothelial and epithelial cells.

I believe and hope that the future will bring a clearer definition of the pathogenesis of the nephrotic syndrome and of the differences between glomerulonephritis and diabetic glomerulosclerosis on the basis of renal biopsy studies and electron microscopic studies.

Dr. Delp: Did the patient have any pulmonary emboli?

Dr. Klinosky: No, she did not. She did, however, have within her lungs areas of focal subpleural hemorrhage which may have resulted in hemoptysis and focal pleuritis, thus mimicking the signs of pulmonary embolism. This lesion, frequently seen at autopsy in patients with uremia or with mitral stenosis, is frequently diagnosed clinically as pulmonary embolism.

SUMMARY

Dr. Delp: Kimmelstiel-Wilson's disease has always been a pathological diagnosis, but for some reason it has so captured the fancy of clinicians that they insist upon using the term and so often inappropriately as here.

Such features as juvenile diabetes mellitus with its notorious difficulty in control, duration of the disease, and manifestations of retinopathy, neuropathy, albuminuria, hypertension, edema and azotemia all point to a nephropathy, but the variety could be revealed only by tissue studies.

It must be assumed that this patient's episodes of pain were a part of the episodes of heart failure and pulmonary edema. An interesting feature of rheumatic mitral stenosis, particularly in young women, is recurrent precordial and chest pain seen in impending or full-blown pulmonary edema. Both dilatation of the pulmonary artery and distention of the atrium have been implicated in the explanation of its pathogenesis.

Pathological Anatomical Diagnosis

Diffuse atrophy and focal fibrosis of the pancreas.
Chronic glomerulonephritis.

Hypertrophy of heart, predominantly of left ventricle.

Atherosclerosis of renal arteries and of the aorta and the cerebral, coronary, splenic and mesenteric arteries, moderate.

References

1. Allen, A. C.: *The Kidney*. New York, Grune and Stratton, 1951, 572 pp.
2. Bergstrand, A., and Bucht, H.: Electron microscopic investigations on the glomerular lesions in diabetes mellitus (diabetic glomerulosclerosis). *Lab. Invest.*, 6:293-300, 1957.
3. Berman, L. B., and Schreiner, G. E.: Clinical and histologic spectrum of the nephrotic syndrome. *Am. J. Med.*, 24:249-267, 1958.
4. Ellis, Arthur.: Natural history of Bright's disease. *Lancet*, 1:1-7, 1942.
5. Epstein, F. H., and Zupa, V. J.: Clinical correlates of the Kimmelstiel-Wilson lesion. *New Eng. J. Med.*, 254: 896-900, 1956.
6. Kimmelstiel, P., and Wilson, C.: Inter-capillary lesions in the glomeruli of the kidney. *Am. J. Path.*, 12:83-98, 1936.
7. Rogers, J., and Robbins, S. L.: Inter-capillary glomerulosclerosis: A clinical and pathologic study. I. Specificity of the clinical syndrome. *Am. J. Med.*, 12:688-691, 1952.
8. Rogers, J., Robbins, S. L., and Jeghers, H.: Inter-capillary glomerulosclerosis: A clinical and pathologic study. II. A clinical study of 100 proven cases. *Am. J. Med.*, 12: 692-699, 1952.

Edited by COLVIN AGNEW, M.D., *Kansas City*

Radiologic Description

There is severe destruction of the intervertebral discs with invasion of the cancellous bone of lumbar vertebral bodies one and two, and involvement of the supporting compacta. The lesion has spread into adjacent soft tissues producing a necrotizing abscess with calcium precipitation. These bulges have displaced the kidneys and by destruction of the disc and bone, produce some distortion of the spinal curve and slight shortening of stature.

Case History

Forty-four-year-old negro housewife who was admitted with the chief complaint of backache of two years duration.

Over the vertebral column, the soreness centered at about T-12. There is no history of trauma or acute onset. Indeed, the backache had a very insidious onset. Pain is described in both flanks which radiates into the lower abdomen. Six months before the present admission pain was present in both legs.

A positive history for chills, fever, sweats or malaise could not be elicited. There was no weight loss. There has been no muscle weakness, paralysis,

or sensory changes. There is no history of tuberculosis, cancer, or cardio-vascular disease. One brother has diabetes.

Physical examination: Abdominal examination. There were no abdominal organs felt. Pelvic examination revealed a left lower quadrant mass with a mid-line multi-nodular mass and questionable left lower flank mass. There was a questionable mass involving the left ovary, and there was a positive impression of a multinodular mass in the fundus of the uterus. Clinical impression was a myoma of the uterus.

Intravenous pyelograms which were made prior to the proposed hysterectomy revealed the real reason for the backache. The patient was transferred to the Orthopedic Service, and has subsequently had a spinal fusion.

Discussion

Tuberculous spondylitis in the past has been an important problem in medicine, especially orthopedics. The incidence of this disease is very low in the United States. Tuberculosis of the spine develops in the spine joint synovia and spreads into the disc



Left: The initial excretory pyelogram reveals chronic disease of the lumbar spine with more displacement of the right than the left kidney. Right: The lateral lumbar spine subsequently revealed how extensive the destruction has been.

to involve eventually contiguous cancellous bone and the central portion of the vertebral bodies. Although the lungs are the most probable portal of entry, many patients have normal chest x-rays.

Maeder, quoted by Schinz, estimated the latent development period of tuberculous spondylitis for such clinical symptoms as back pains, spinal curvature, and abscess formation to be spread over a three and one-half to twenty-one month period, with most cases falling between six and twelve months. Thus, this patient may well have had tuberculosis for longer than the two-year period of backache. Anatomically the destruction is somewhat more marked in the anterior portion of vertebral bodies. This produces a dorsal angulation or a kyphosis. A compensatory angulation may develop. It has been suggested that these angulations produce muscle spasm and it may account for the back pain.

Tuberculous arthritis and osteomyelitis has been a very serious disease and its positive diagnosis in early stages is fraught with difficulty. Many false conceptions exist concerning diagnostic accuracy. The demonstration of an infectious focus depends upon the size of a lesion in relation to its adjacent structures. Thus in the lung it is often possible to recognize small, and presumably early tuberculous lesions. However, tuberculous arthritis and spondylitis may take months before the earliest roentgen changes may be perceived. *Therefore, serial examination at shorter or longer intervals may be necessary to establish the diagnosis.*

In the more advanced stage of the disease such as exhibited by this patient, there is very little confusion as to the diagnosis. Other fungal infections may produce somewhat similar bone lesions. Although even rarer than tuberculosis, actinomycosis, coccidioidomycosis, blastomycosis, and sporotrichosis, have been reported involving bone. Their radiologic appearance may be very little different. Often, there is more soft tissue involvement.

Osteomyelitis of the spine caused by *Staphylococcus aureus* and *Pseudomonas* may be expected to show reactive sclerosis and periosteal reaction since these are both rather rare or entirely lacking in tuberculous spondylitis. Metastatic neoplasm may pose a problem in differential diagnosis. The cardinal point to distinguish secondary bone neoplasm from tuberculous spondylitis is the destruction of vertebral bodies without intervertebral disc involvement.

Acknowledgement

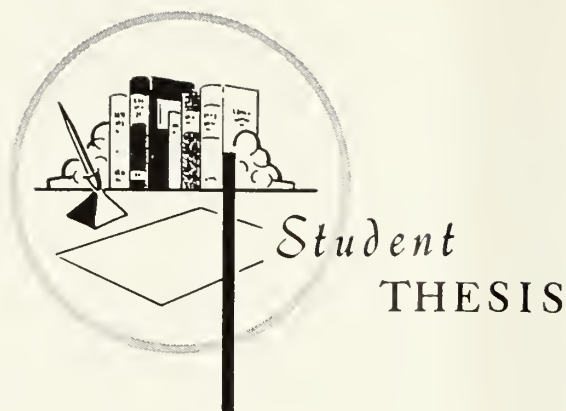
This clinical material was submitted by R. Wilcox, Department of Radiology.

References

- Aegerter, E., Kirkpatrick, J. A., Orthopedic Diseases, W. B. Saunders Co., Phila. 1958.
- Schinz, H. R., Baensch, W. E., Friedl, E., Uhlinger, E., Roentgen-Diagnostics, Vol. I, Grune & Stratton, New York, 1951.
- Ting, Y., Osteomyelitis of the Spine, Radiol. 76:27-31, Jan. 1961.

BACK THE ATTACK On Traffic Accidents WITH THESE SPEED RULES

- ▶ Drive at a speed that will enable you to stop in the assured clear distance ahead.
- ▶ Slow down before you get to curves and intersections.
- ▶ At night, drive at the speed which will let you stop within your headlight range.
- ▶ Drive with traffic. You are probably going too fast if you are passing many cars—too slow if many are passing you. Where children are playing, be able to stop in a car length or less.
- ▶ When you're tired or inattentive, stop.



Micrococcus Pyogenes (Staphylococcus Aureus) Carriers in a Student Nurse Population

THOMAS R. BLAIR, M.D.

RECENT OUTBREAKS of antibiotic resistant staphylococcal infections in hospitals have reached epidemic proportions. The serious consequences of these infections have stimulated new interest in their epidemiology. Staphylococcal typing by the bacteriophage technique has shown that certain strains are more resistant to antimicrobial therapy. This knowledge has further stimulated interest in phage typing of staphylococci isolated during epidemics.

This study was undertaken to determine the incidence of *Staphylococcus aureus* on routine culture among student nurses at the University of Kansas Medical Center. Because phage type 80,81 has been cited as the epidemic strain in staphylococcal infections in this hospital, the incidence of this strain cultured from the student nurses was determined.

Method

During a four week period in June and July, 1958, nose and throat cultures were obtained from the student nurses at the Kansas University Medical Center. This group consisted of 103 students who were receiving their training in the hospital at the time.

Cotton swabs were used to obtain cultures from the nose and tonsillar areas. The swabs were streaked

onto Difco's *Staphylococcus* 110 agar within a few hours. The media was then incubated at 37°C. for 43-48 hours. Characteristic gold colonies of *Staphylococcus aureus* were selected and inoculated into trypticase soy broth. The broth was incubated at 37°C. for 18-24 hours.

From this broth culture, .3 cc was combined with .3 cc of coagulase plasma and incubated in a water bath at 37°C. After three hours, the tubes were read for coagulase activity.

All coagulase positive staphylococcal cultures were then tested for hemolysis, mannitol fermentation, and antibiotic sensitivity.

Hemolysis was tested by streaking material from the trypticase soy broth culture onto blood agar and incubating for 18-24 hours. Any clear area around the staphylococcal growth indicated hemolysis.

Test tubes containing 3 cc of mannitol broth with indicator (brom cresol purple) were inoculated from the broth culture. A change of color of the solution from purple to yellow in 24-36 hours at 37°C. indicated mannitol fermentation.

To determine antibiotic sensitivity, cotton swabs of the trypticase soy broth culture of staphylococcus were streaked onto nutrient agar plates. Multidiscs of the following nine antibiotics were placed on the agar and incubated 18-24 hours. (Aureomycin 10 mcg., erythromycin 10 mcg., Oleandomycin 5 mcg., tetracycline 10 mcg., streptomycin 10 mcg., Terramycin 10 mcg., penicillin 1.5 v., novobiocin 5 mcg., and

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Blair is now at the Tripler Army Hospital in Honolulu, Hawaii.

chloramphenicol 10 mcg.) Any clear zone around an antibiotic disc was considered to indicate sensitivity of the staphylococcus to that antibiotic.

All coagulase positive staphylococci were also inoculated onto trypticase soy agar slants and incubated 18-24 hours. These slants were sent to the Kansas State Board of Health, Division of Public Health Laboratories, Topeka, Kansas, for bacteriophage typing of the staphylococci.

Results

The student nurses were cultured on three occasions during a four week period. From the 103 nurses, a total of 570 nose and throat cultures were obtained. One hundred two nurses were cultured the first time. Two weeks later, 89 nurses were cultured, including one that had not been cultured the first time. After another two week interval, 94 nurses were cultured. All of these had been cultured at least once previously.

Of the 570 cultures obtained, 216 showed growth of *Staphylococcus aureus*, of which 195 were coagulase positive. One hundred fourteen of the coagulase positive staphylococci were from the throat, and 81 were from the nose.

Table 1 shows the number of nurses that carried

TABLE 1
CARRIERS OF COAGULASE POSITIVE
STAPHYLOCOCCUS AUREUS

| | June 24 | July 8 | July 22 |
|---|---------|---------|---------|
| No. cultured | 102 | 89 | 94 |
| Carriers coagulase positive staphylococci | | | |
| nose and/or throat | 57(56%) | 44(49%) | 54(57%) |

coagulase positive *Staphylococcus aureus* in the nose and/or throat on each of the three occasions when cultures were obtained.

Thirty-four nurses were not carriers of a coagulase positive staphylococcus at any time during the period of study. Fourteen were carriers on one occasion, 29 were carriers on two occasions, and 27 were carriers on all three occasions.

A good correlation between coagulase activity, hemolysis, and mannitol fermentation was found. Of the 195 coagulase positive staphylococci, only 11 showed no hemolysis on blood agar, and only 4 failed to ferment mannitol.

Antibiotic sensitivity patterns of the coagulase positive staphylococci obtained are seen in Table 2.

Of the 103 nursing students cultured at least one

TABLE 2
ANTIBIOTIC SENSITIVITIES OF COAGULASE
POSITIVE STAPHYLOCOCCI

| | |
|--------------------------------|---------|
| Sensitive to all* | 75 |
| Resistant | 120 |
| a. To penicillin | 83 |
| b. To A, Te, S, T, P | 26 |
| c. To novobiocin | 2 |
| d. To C, E | 0 |
| e. Other | 9 |
| Total | 120 195 |

* A—Aureomycin, E—erythromycin, O—oleandomycin, Te—tetracycline, S—streptomycin, T—Terramycin, P—penicillin, NV—novobiocin, C—chloramphenicol.

time, 8 (8 per cent) were found at one time or another to be carrying a phage type 80,81 staphylococcus. Subsequent cultures were obtained from 7 of these nurses to determine if an 80,81 type could again be found. Results are seen in Table 3.

Discussion

Sylvester and Grundy found the incidence of *Staphylococcus aureus* carriers among professional personnel of four hospitals to range between 20-31 per cent. Lepper *et al.* reported that at any one time, approximately 25 per cent of hospital personnel carried coagulase positive staphylococci. Hutchinson reports the single swab carriage rate among nurses to be about 45 per cent. In the present study, 49 to 57 per cent were found to carry coagulase positive staphylococci at any one time.

The most common antibiotic sensitivity pattern of the 195 coagulase positive staphylococci cultured in this study was the group resistant to penicillin but sensitive to all of the other antibiotics tested. Eighty-three (43 per cent) cultures were in this group. Seventy-five (33 per cent) were found to be sensitive to all antibiotics tested. The third most common pattern was the group resistant to Aureomycin, tetracycline, streptomycin, Terramycin, and penicillin. Twenty-six (13 per cent) cultures were in this group. There were no staphylococci resistant to erythromycin or chloramphenicol.

There was low incidence (8 per cent) of nurses carrying the epidemic strain (phage type 80,81). Of the 8 nurses in this group, 2 (nurses number 4 and 7, Table 3) might be possible persistent carriers. Hutchinson found nurses that harbored the same phage strain of staphylococcus on repeated cultures for nine weeks to over ten months. He termed these nurses persistent carriers. Others were found to acquire and

TABLE 3
POSITIVE CULTURES OF PHAGE TYPE 80,81 FROM 8 STUDENT NURSES

| <i>Nurse</i> | <i>1st culture</i> | <i>2nd culture</i> | <i>3rd culture</i> | <i>4th culture</i> | <i>5th culture</i> |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1 | — | *N, T | — | — | *N |
| 2 | *N | — | — | — | — |
| 3 | — | — | *N | — | — |
| 4 | *N | *N, T | *N, T | *N | not cultured |
| 5 | — | *N, T | *N | *N | — |
| 6 | *T | — | — | — | not cultured |
| 7 | *N | *N | *N | — | *N |
| 8 | *T | not cultured | not cultured | not cultured | not cultured |

* Positive culture N—nose, T—throat

lose strains frequently. These nurses he called, temporary carriers. The 2 nurses that carried the 80,81 staphylococcus in this study on four cultures can only be considered possible persistent carriers because the period of study was not long enough to establish them as definite persistent carriers. These 2 nurses received no antibiotic treatment during the period of study.

Of the other 6 nurses who converted from 80,81 at one time or another, it is known that 2 did not receive antibiotic treatment during the study. No records are available for the other 4 nurses.

Summary and Conclusions

Five hundred seventy nose and throat cultures were obtained from 103 student nurses during a four week period. The incidence of culture of coagulase positive staphylococci was found to be from 49 to 57 per cent.

Of the 103 nurses, 8 were found to be occasional carriers of the epidemic phage type 80,81. Two of these 8 showed persistence of the 80,81 staphylococcus on subsequent cultures, and might be possible persistent carriers.

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 W. 4th Street, Topeka, Kansas.

A LAYMAN LOOKS AT THE PRACTICE OF MEDICINE

We forgot to mention anything about Robert I. Peele, the author of "A Layman Looks at the Practise of Medicine" which appeared on Page 144 of the April issue of THE JOURNAL.

Mr. Peele is Advertising Director of the *Topeka Capital-Journal* in Topeka, Kansas. This article was first presented at the Saturday Night Literary Club of Topeka.

The JOURNAL wishes to express sincere apologies to Mr. Peele as well as to its readers who were left wondering.

The President's Message

DEAR DOCTOR:

For several years I have been absorbing knowledge as to the problems of Medicine in Kansas, in attending meetings of Kansas Medical Society Committees, meetings of the Council and of the Executive Committee, holding junior offices, and in serving 3 years as a member of the Board of Blue Shield. I hope all this has helped, for now in assuming the Presidency of the Kansas Medical Society, I am feeling very humble, and that much more knowledge and capability would be needful to enable me to do all I want to do for our Society. I shall serve you to the best of my ability at all times, and am very thankful that through the years so many of you have become good trusted friends. I am grateful to you for your ready acceptance of Committee assignments, and feel that we have a fine set-up that should facilitate widening the Society's effectiveness in improving our conditions of practice.

It is my idea that we should do all we can to continue and improve our Postgraduate Instruction Program, run so effectively in conjunction with our Medical School; working on improvements as we see new horizons in that area.

I am convinced that those in the aging population want what they want, and don't want somebody else telling them what they need and what they are going to get, so of course, I favor the Kerr-Mills Bill, already passed and am very sorry our State Legislature did not enact legislation permitting Kansas participation. I sincerely hope the King-Administration Bill will fail to pass, and believe time will show the adequacy of the Kerr-Mills Bill. It still needs active backing in Kansas.

There are many other problems before us. We will do our best.



Fraternally yours,

Harold M. Glover, M.D.

President



Editorial COMMENT

Confidential Studies

The 1961 Kansas Legislature passed the following bill to protect certain scientific studies from irresponsible law suits. It was thought this would be of interest to the members of the Society.

SECTION 1. The term "data" as used in this act shall be construed to include all facts, information, records of interviews, written reports, statements, notes, or memoranda secured in connection with an authorized medical research study. The state board of health may authorize the state health officer to receive data secured in connection with medical research studies conducted for the purpose of reducing morbidity or mortality from maternal, perinatal and anesthetic causes. Such studies may be conducted by the state health officer and his staff or by the state health officer jointly with other qualified persons, agencies or organizations. Where authorization to conduct such a study is granted by the state board of health, all data voluntarily made available to the state health officer in connection with such study shall be treated as confidential and shall be used solely for purposes of medical research. Research files and opinions expressed upon the evidence found in such research shall not be admissible as evidence in any action in any court or before any other tribunal: *Provided, however,* That any statistics or tables resulting from such data shall be admissible as evidence: *Provided,* That this act shall not affect the right of any patient or his guardians, representatives or heirs to require hospitals, physicians, sanatoriums, rest homes, nursing homes or other persons or agencies to furnish his hospital record to his representatives upon written authorization, or the admissibility in evidence thereof. No employee of the state board of health shall interview any patient named in any such report, nor any relative of any such patient: *Provided,* That nothing in this act shall prohibit the publication by the state health officer or a duly authorized co-operating person, agency or organization, of final reports or

statistical compilations derived from morbidity or mortality studies, which reports or compilations do not identify individuals, associations, corporations or institutions which were the subjects of such studies, or reveal sources of information.

SECTION 2. The furnishing of data to the state health officer or his authorized representative, or to any other co-operating agency in such medical research study, shall not make any physician, hospital, sanatorium, rest home, nursing home or other persons or agency furnishing such data, subject to any action for damages or other relief.

SECTION 3. Any disclosure of data in violation of the provisions of this act shall be a misdemeanor and punishable as such. Nothing herein contained shall be construed as conferring upon the state health officer the power to demand or require that any physician or other person furnish any data other than as may be expressly required by law.

SECTION 4. This act shall take effect and be in force from and after its publication in the statute book.

CLYDE HILL, *Chairman*

Automobile Safety Belts

The American Medical Association, the American College of Surgeons and many other organizations have cooperated with the National Safety Council in an effort to interest a wider public use of automobile safety belts. The Consumers Union, publisher of *Consumer Reports*, announces this effort is meeting with some success in that the automobile manufacturers have agreed to provide built-in attachment points for safety belts in their 1962 automobiles. This, it is hoped, will provide an impetus to the public acceptance of safety belts.

Publicity given this subject, as is so often true,

tends to mislead, and this fact is discussed by the Consumers Union as an ultimate reversal of the public opinion intended. Announcements have been made that through the use of safety belts a reduction in automobile deaths can expect to achieve a figure of 50 per cent. Some even suggest a higher percentage than this.

The problem is not that simple. The figure was arrived at through taking the number of automobile deaths of last year which was 38,000, and by dividing them in half, the suggestion is implied that 19,000 lives can be saved. These optimistic statistics do not look at some of the facts in the case. There were out of the 38,000 casualties about 16,000 deaths resulting from the part played by pedestrians, bicyclists and occupants of trucks and busses. They would not be affected even if every automobile were equipped with safety belts. Furthermore, the automobile manufacturers agreed only to provide the attachment points for seat belts, and then only for the 1962 automobiles. This means the purchaser will still have to supply the belts and, of course, have them in use at the time the accident occurs. Even if every purchaser of a 1962 automobile adds safety belts and uses them each mile he travels, by the close of the manufacture period for that year, there will only be 10 per cent of the total vehicles on the highways included in this figure. So instead of the optimistic figure of the saving of 50 per cent of the fatalities, the figures probably should read 5 per cent.

This is all to the good except the public is apt to become discouraged if there is no dramatic improvement in the statistics. Therefore, it appears appropriate at this time to advise the public that the publicity is not founded upon actual fact and that this step toward a future improvement can only mark a beginning of a result that should increase in effectiveness.

Moreover, it has never been established with sufficient statistical evidence as to the exact percentage of life saving that occurs in the use of safety belts. It seems adequately established that there is a benefit, but the Automotive Crash Injury Research, performed at Cornell University, with the large amount of data assembled there, has only a small number of cases for statistical comparison.

Consumers Union recommends the public be advised through all responsible organizations and individuals who appreciate the value of seat belts that drivers of automobiles should install seat belts in all cars, and not only the new cars, and that they should be used whenever the automobile is in operation. It is further recommended that a more accurate statement is made giving in realistic terms the degree of improvement that can be expected from this use. And, finally, it is recommended that the public be educated

to recognize the role it must play in determining the size of improvement to be made through this use.

Cost of Prescriptions

Since the federal government investigated the pharmaceutical industry, it is quite natural that the industry itself should intensify its campaign to enlist public support of its position. A number of interesting articles and pamphlets have appeared on this subject giving both statistical and philosophical argument to the case of individual enterprise as practiced in America.

The Pharmaceutical Manufacturers Association, 1411 K Street, NW, Washington 5, D. C., prepared a 36-page pamphlet giving graphs to support its argument that the American way of producing pharmaceuticals is preferable to that of other ideologies. This pamphlet should be of interest to the medical profession and may be obtained by writing the above address. It cites the dramatic reduction of deaths from a significant number of diseases and explains that research of the drug industry, leading to the development of more effective pharmaceutical products, has contributed to this benefit. It states the drug industry in 1958 spent \$170,000,000 in research. This research was financed through drug industry sales. They further break down the fact that 114,600 different substances were tested in laboratories in that year. This tremendous effort places the United States far in the lead in drug research throughout the world. In the twenty years between 1939 and 1959 the United States produced at least thirty-five important new drugs; Germany—14; Switzerland—7; France—5.

This pamphlet states that 44 per cent of all industry profits went back into industry, most of it in research. According to their statement, the drugs available today represent no increase in the percentage of the cost of health care from the less effective drugs used in 1930. Today, according to their figures, 19.9 cents of the health care dollar is spent on drugs. In 1930 it was 20 cents of every dollar.

Many items represent a greater outlay of American money than drugs. Quoting the United States Department of Commerce, Americans spent 3.3 billion dollars on drugs and sundries in 1958. In that same year, at least seven other categories of expenditures ranked higher. Food and tobacco sales accounted for an expenditure of 83 billion dollars. Household operations were next. Transportation represented an outlay of 33.6 billion dollars. Then came clothing, recreation and next medical care exclusive of drugs listed at 13 billion dollars.

Their argument is that America benefits from the competitive profit system in drugs. This same argument is propounded in a publication prepared by the Smith Kline and French Laboratories on the subject of brand name. It is their estimate that if physicians used generic names the saving to the purchaser would be about one cent a tablet, but this would be accompanied with a gamble. There is a wide variation in the presence of active ingredients in various compounds purporting to equal, but even this is no more important than the solutions or other properties contained with the active ingredient which vary as widely. The argument is that generic identity cannot assure therapeutic equivalents. As drug products become increasingly complex, the possibilities for product to product differences multiply.

This laboratory reports a typical testing program for a new drug prior to its public use and estimates there are from 830 to 1,170 separate, quality-controlled checks on each product. The value of a drug to its eventual user depends upon the integrity of the manufacturer, and on that basis, this company hopes physicians will continue to use drugs produced by companies in which the physician has confidence.

It is certain above statements taken from two of the recent publications on this subject do not represent the final answer to this complex and difficult problem. It is certain that somewhere through the further exploration of this field there will come a way to insure the public that the pharmaceutical products recommended by the physician contain exactly what the physician intends and that the price for such would be in keeping with their cost. In the meantime, it appears more necessary than ever that the physician and the pharmacist understand the difficult situation imposed at the present time and that these two professions find a means for closer cooperation than ever before in the public interest.

Traffic Deaths

Much publicity is properly given the enormous problem of traffic deaths. These are often listed locally for the State of Kansas and then compared with the nation as a whole. Recently, however, a map of the United States, with some information on each state, was published in the *Journal of American Insurance* which lists the official motor vehicle deaths by states for the year 1959. In this map, some quick facts are easily established.

Different colors are given to four separate categories. There are, for example, 13 states which in 1959 had a death rate of less than five for every one hundred million vehicle miles travelled. Seventeen states ranged between five and under six. Nine

states fell in the category of six to less than seven. Nine states had seven or more deaths per 100 million miles travelled. The over-all rate for the United States was 5.4. Kansas stood at 5.7.

There is, of course, a state by state variation, but in general terms, the northeastern quarter of the United States presents the best safety record, with the State of Connecticut having the lowest traffic fatality figure of 2.6. With the exception of the State of Washington, all states in this nation with a fatality rate of less than 5 fall in the northeastern quarter of this country. The seventeen states ranging in the category of five to under six deaths per 100 million miles appear as a solid block of central states, with a few scattered in other areas. Beginning with Indiana and travelling west through Utah, north to Wisconsin and south to Texas, almost every state falls within this category. Among these, Kansas is next to Oklahoma with the highest figure.

States with the most fatalities per 100 million miles are often the more sparsely settled areas. The highest rate in the nation for that year was Nevada with a figure of 9.5. New Mexico had 8.7; Arizona—8.5.

The article concludes by saying "That if all U. S. vehicles were moving at once they would travel only a quarter of a mile or two city blocks before a traffic fatality would be recorded."

Men who neglect Christ, and try to win heaven through moralities, are like sailors at sea in a storm, who pull, some at the bowsprit and some at the mainmast, but never touch the helm.—*Henry Ward Beecher*

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Donald D. Arthurs, M.D.
216 East Fourth
Cherryvale, Kansas

Robert F. Moore, M.D.
123 West Fourth
Caney, Kansas

Angus M. G. Crook, M.D.
3244 East Douglas
Wichita 8, Kansas

K. M. Neudorfer, M.D.
St. Francis Hospital
Wichita 14, Kansas

Ira R. Grimes, M.D.
523 North Washington
Liberal, Kansas

J. L. Salomon, M.D.
Boeing Airplane Company
Wichita 10, Kansas

C. R. Jackson, M.D.
3244 East Douglas
Wichita 8, Kansas

Ralph A. Seltzer, M.D.
2008 Mitchell Road
Lawrence, Kansas

William W. McCue, M.D.
17 East Third
Liberal, Kansas

C. Robert White, M.D.
Building 4314-1
Fort Riley, Kansas

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011, ex. 297

General Medicine Monographs available in the library

- Clark, W. Guide to Medical Terminology. Davis Co. 1956.
- Krenay, M. Understanding Medical Terminology. Catholic Hospital Assn., St. Louis. 1958.
- Skinner, H. A. Origin of Medical Terms. William & Wilkins Co. 1949.
- Agard, Walter. Medical Greek and Latin at a Glance. Hoeber. 1937.
- Survey of Medical Education. Medical Schools in the U. S. at Mid-century. McGraw-Hill. 1953.
- Hammond, K. R. Teaching Comprehensive Medical Care; a psychological study of a change in medical education. Harvard University Press. 1959.
- Medical Examination Review Book. Basic Sciences. Medical Exam Publishing Company. 1960.
- Morton, Robert K. The Student-Physician; introductory studies in the sociology of medical education. Harvard University Press. 1957.
- Robinson, George. Adventures in Medical Education; a personal narrative of the great advance of American Medicine. Harvard University Press. 1957.
- Rypins, Harold. Medical Licensure Examinations. Lippincott. 1960.
- Survey of Medical Education. Preparation for Medical Education in the Liberal Arts College. McGraw-Hill. 1953.
- American Foundation. Medical Research; a Mid-century Survey. Little, Brown. 1955.
- Clark, Marguerite. Medicine Today: A Report on a Decade of Progress. Funk & Wagnalls. 1960.
- Farris, E. J. The Care and Breeding of Laboratory Animals. Wiley. 1950.
- Ingle, D. J. Principles of Research in Biology and Medicine. Lippincott. 1958.
- Year Book Publishers. Methods in Medical Research. 1948.
- U. S. Public Health Service. Diet, Hormones & Atherosclerosis; a Review of Research Grants supported by the National Heart Institute. 1958.
- Hippocrates. Medical Works. Blackwell Scientific Publications. 1950.
- Mayo Clinic. Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic. 1905 to present.
- Sarnoff, J. Better Health, Longer Life. Abelard-Schuman. 1959.

Netter, Frank H. The Ciba Collection of Medical Illustrations. Volume 1. Nervous System. V. 2. Reproductive System. V. 3. Digestive System.

History of Medicine Monographs

- Bonner, T. N. The Kansas Doctor. Univ. of Ks. Press. 1959.
- Major, R. H. Disease & Destiny. Univ. of Ks. Press. 1958.
- Fulton, J. F. Vesalius Four Centuries Later. Univ. of Ks. Press. 1950.
- Leake, C. D. The Old Egyptian Medical Papyri. Univ. of Ks. Press. 1952.
- Sarton, G. Galen of Pergamon. Univ. of Ks. Press. 1954.
- Belt, E. Leonardo the Anatomist. Univ. of Ks. Press. 1950.
- Guthrie, D. From Witchcraft to Antisepsis. Univ. of Ks. Press. 1955.
- Long, E. R. A History of the Therapy of Tuberculosis and the Case of Fredric Chopin. Univ. of Ks. Press. 1956.
- Stevenson, L. G. The Meaning of Poison. Univ. of Ks. Press. 1959.
- Garrison, R. H. An Introduction to the History of Medicine. Saunders. 1929.
- Gordon, M. B. Aesculapius comes to the Colonies; story of early days of medicine in the Thirteen Original Colonies. Ventnor Publishers. 1949.
- Gordon, B. L. Medicine throughout Antiquity. F. A. Davis Co. 1959.
- Haggard, H. W. Devils, Drugs & Doctors; story of science of healing from medicine man to doctor. Harper. 1929.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

- Haggard, H. W. Mystery, Magic & Medicine; the rise of medicine from superstition to science. Doubleday, Doran. 1933.
- Hecker, J. F. The Epidemics of the Middle Ages. Woodfall & Son. 1844.
- Leff, S. From Witchcraft to World Health. London, Lawrence & Wishart. 1956.
- Major, R. H. A History of Medicine. Thomas. 1954.
- Mathison, R. The Eternal Search; a story of man and his drugs. Putnam. 1958.

Electric Voice

A new electronic larynx is now available for persons who have lost their voices through paralysis or surgical removal of the vocal cords.

This device weighs seven ounces and is designed to fit the user's hand. The user holds it against the



outside of his throat and the electronic larynx transmits sound waves into the throat cavity. A finger control enables the user to vary the pitch of his voice over a half-octave range in order to produce more natural inflections of speech and to emphasize words and phrases.

It is produced in two models—one is high pitched to simulate the female voice and the other has a lower pitch for use by men.

The electronic larynx was developed by Bell Telephone Laboratories scientists, working in cooperation with the medical staff of the National Hospital for Speech Disorders in New York City.

The device is being sold by Bell System telephone companies at a non-profit cost of \$45. It is manufactured by Western Electric Company, supply and manufacturing branch of the Bell Telephone System. Each new unit carries a one year guarantee against manufacturer's defects. After the guarantee period has expired, Western Electric will repair the artificial larynx at a small, non-profit cost.

In Kansas, the electronic larynx is being sold by Southwestern Bell Telephone Company. Call any Southwestern Bell Business Office for information on

availability of the device and arrangements for demonstrations.

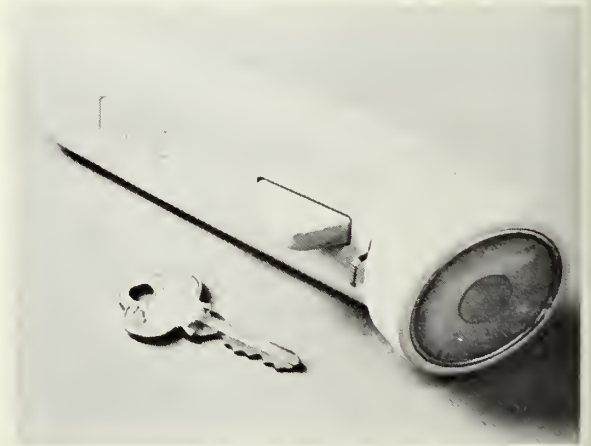
A spokesman said the company is training representatives to demonstrate the electronic larynx.

"Our representatives will not try to be speech therapists," he pointed out. "We will urge all interested persons to first consult their own physicians about using the electronic larynx. We will point out that esophageal speech generally is the preferred method of communications for laryngectomees and that the artificial device primarily is designed for use by persons unable to master this method of speech or who temporarily lose the ability to talk this way."

The electronic larynx is essentially trouble-free, he said. It uses Bell transistors and is powered by self-contained mercury batteries. Battery life ranges up to several months, depending on amount of use. New batteries may be purchased at any radio supply store.

The speech volume is equivalent to a normal talker speaking at a conversational level.

The spokesman said most persons can learn to talk with the electronic larynx after a relatively short period of practice. With more practice, the user can learn to operate the pitch control to produce speech



with a considerable degree of intelligibility and naturalness.

The Bell System has provided artificial larynges to laryngectomees for many years. While the new electronic larynx replaces the earlier models, parts for the older models will still be available.

Series E and H Savings Bonds, bought now, when held to maturity pay $3\frac{3}{4}$ per cent. Maturity for E bonds sold since June 1, 1959, is 7 years and 9 months; for H bonds, 10 years.



The Business Side of Medicine

Partnership Life Insurance

FLOYD F. WEHRENBURG, Kansas City

Doctors in partnership often wonder whether it would be wise to provide for the purchase of a partner's interest upon his death through insurance on the lives of the partners. This can be accomplished by a system of cross-insurance whereby a policy is carried on each partner's life. Each policy is owned by all the other partners who are also beneficiaries of that policy. For instance, in a partnership of Doctors A, B and C, Doctors A and B own a policy on Doctor C; Doctors A and C own a policy on Doctor B; and Doctors B and C own a policy on Doctor A. Because of varying ages and rates, the insurance premiums are usually totaled and charged to the partners on an equal basis. These premiums are a personal non-deductible expense to the partners. And since the policy on a partner's life is owned by the other partners, this insurance is not included in his estate in case of death. The proceeds in case of death are tax-free to the beneficiary partners.

Some Advantages

Here are some of the advantages of such a plan.

1. Cash is immediately available upon the death of a partner for liquidation of his capital interest.
2. It eliminates the risk to a partner's estate of not receiving its money from the remaining partners.
3. It eliminates any financial burden to the partners in case of death of one or two members and insures the continuation of the partnership. Often without such insurance it is necessary to liquidate the partnership to pay off a deceased member's interest.

Mr. Wehrenburg is Missouri-Kansas Manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

Some Disadvantages

The primary disadvantages are these.

1. Each partner finances the liquidation of his own capital account indirectly by paying his pro rata share of the cost of the insurance. This works to the benefit of his partners but not to his own family.
2. Advanced age or a history of disability often makes the cost of such an insurance program extremely high.
3. For partners who are financially independent, this may represent an unnecessary expenditure.

Determining Need

How, then, does one determine whether a partnership should purchase life insurance on its members?

A. A determination should be made of the capital investment in a partnership and whether or not this investment is adequate to make such a program necessary. In many manufacturing and retail firms, the capital investment is very high and represents all the assets of the partners. This is not generally true of professional partnerships.

B. A review should be made of the ages, insurability and financial status of each partner. This will reveal both the cost of an insurance plan and, combined with paragraph A, the need for an insurance plan.

C. A study should be made of workable alternatives to an insurance plan. These include such things as available credit for financing (buildings, equipment, etc.), payment of a partner's interest in accounts receivable as collected, and installment payments to an estate in settlement of the remaining capital interest.

(Continued on page 246)

How to Avoid Living to a Ripe Old Age

Would you like to leave this good earth before your time? It's easy. All you need to do is follow some simple rules.

The first, and most important thing to remember is: never consult a physician. If you want advice, listen to the neighborhood know-it-all.

If you develop a little pain in the chest, or your eyes start to fog up, or your hearing begins to fade, or you get frequent headaches, don't waste money seeing a doctor. Just bide your time. It will probably pass. If it doesn't, attribute it to old age. (In fact, attribute *any* ailment to old age—even if you *are* 16.)

Emotional health must be ignored as studiously as physical health. About half the people who seek medical attention suffer from ailments caused or aggravated by long emotional stress.

At your job (and off), work like a demon. Never relax. Never get away from it all—your time will come quickly enough.

Shortchanged by the grocer? Insulted by a waitress? Chastised by the boss? Did the neighborhood problem child break your window again? Don't blow your stack. Bottle everything up. Sulk.

Don't worry about finding some sensible way to free those pent-up emotions. The human body is a wonderful machine. Eventually it will free your bottled-up emotions for you, all at once . . . and you'll have a nervous breakdown. (One person in 13 has one.)

Seriously, though—and all kidding aside—it is easy to make your exit prematurely—too easy. Carelessness with your health is one way. Accidents (which killed 85,000 Americans last year) are another. Yet accidents are more the result of being downright silly than of taking unusual risks. For example: one person last year forgot he had installed a glass door in his shower and so walked right through it!

Here are other examples of people who momentarily stopped thinking, and lived—or didn't live—to regret it.

A motorist's car skidded off the road and into some sand. The driver jacked it up, then slid under it to lay some blankets for traction. Deciding the car wasn't high enough, the driver reached out *from under the car* to raise the jack—and the jack slipped.

One young man was celebrating the Fourth of July with fireworks. He touched off a Roman candle, which he had aimed away from himself, but it backfired. All 10 balls hit him in the stomach. He died.

A power-boat owner—and self-styled mechanic—sat down on the motor while holding the hot line

from the battery charger. The motor was a perfect ground—and the battery charger did the rest.

Another proved you can run into an electrical hazard even if you own a sailboat. He kept the mast up while he was loading his sailboat on its trailer. The mast bumped into an overhead power line, and the electricity ran down the guy wires and into the man loading the boat.

Another part-time sailor, who didn't know how to swim, was out in a boat alone—without a life jacket—cleaning the bottom of a pond. The boat capsized, and by the time anyone could get to him, it was too late.

A man, cleaning drapes for his wife, used gasoline as the cleaning fluid. This in itself was bad enough—but he was working less than 10 feet away from a hot water heater. There was an explosion—and that was the end of the garage, the drapes, and him.

Still another explosion was caused by something as harmless-looking as a pressurized shaving-lather can. One man evidently neglected to read the instructions on the can when disposing of it. He threw it into a fire with the rest of the trash he was burning, and it did exactly what the label said it would do. It exploded, putting him in a hospital for two weeks.

And finally, a businessman had problems with his cufflinks. He forgot to remove them from his shirt. When he tried to take off his shirt, it slipped down off his shoulders and dropped behind him—still securely attached to his wrists. In the ensuing battle with the cufflinks, he tripped over the tail of the shirt and hit his head against a chair.

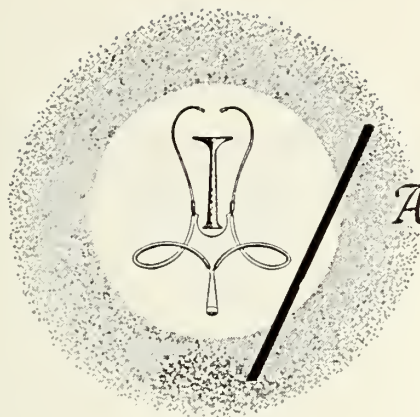
Pay attention to the moral of this story:

One afternoon, a stranger in town was astonished to see a gray-haired, decrepit old man valiantly competing with some youngsters in a grueling game of tackle football. His curiosity was such that he approached the old fellow to find out the secret of his long life.

"I drink two quarts of liquor a day, smoke five packs of cigarettes, eat anything I can lay my hands on, and never see a doctor," the old man gasped. "Amazing!" cried the stranger. "And yet, at your age, you play football!" The oldster's bloodshot eyes showed that he was offended. "Gee whiz, mister," he said, "I'm only 16."

A great many people think they are thinking when they are merely rearranging their prejudices.

—William James



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry pathology and physiology on June 9 and 10, 1961, at the University of Kansas Medical Center, Kansas City, Kansas. Satisfactorily completed applications for examination should be submitted at least 30 days prior to date of examination. Application blanks and other information can be obtained from Dr. L. C. Heckert, Secretary of the Kansas Board of Basic Science Examiners, Pittsburg, Kansas.

at The University of Kansas Medical Center, Battenfeld Auditorium, Kansas City, Kansas on May 15-18, 1961. Send all communication to: Department of Postgraduate Medical Education, University of Kansas School of Medicine, Kansas City 12, Kansas.

The Trudeau School of Tuberculosis and Other Pulmonary Diseases will hold its Forty-sixth Session in Saranac Lake, New York from June 5 to 23, 1961, continuing to provide a unique opportunity for training in the field of chest diseases.

The 27th annual meeting of the American College of Chest Physicians will be held at the Commodore Hotel, New York City, June 22-26, 1961. A joint session with the Section on Diseases of the Chest of the American Medical Association will be held at the Coliseum, Monday, June 26. This will be the first joint meeting in the history of the two societies. Several Kansas physicians will participate in the programs.

The enrollment is necessarily limited and applications should be made early. Inquiries should be addressed to the Secretary, Trudeau School of Tuberculosis and Other Pulmonary Diseases, Box 670, Saranac Lake, New York.

A special scientific feature at the 110th annual meeting of the American Medical Association in New York City, June 25-30 will be a series of outstanding medical films from all parts of the world.

More than 50 medical films will be shown and, in many instances, the film's author will be present to answer questions from the attending physicians.

Information about the film exhibit may be obtained from Ralph Creer, Department of Medical Motion Pictures and Television, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

A joint annual meeting of the National Tuberculosis Association, American Thoracic Society, and National Conference of Tuberculosis Workers will be held in Cincinnati, Ohio, May 21-25, 1961. Registration will open at 10:00 a.m. on May 21 in the Netherland Hilton Hotel. Further information may be obtained from the National Tuberculosis Association, 1790 Broadway, New York 19, New York.

A small group of Doctors of the Kansas Medical Society are endeavoring the promotion of a Charter Flight to Europe in June, 1962. The round trip will be from Wichita, Kansas to Paris, France, and will cost approximately \$365.00! Those interested please write either Dr. Paul Uhlig or Dr. John Shellito, 3244 East Douglas, Wichita 8, Kansas.

The interests and requirements of the general surgeon have received primary consideration in selecting the subjects for discussion in the sixteenth annual Postgraduate Course in Surgery. It is to be offered



J. ETHAN BARKER, M.D.

Dr. J. Ethan Barker, 85, Kansas City physician and surgeon, died March 31 at Bethany Hospital in Kansas City.

He was born in True, West Virginia in 1875. He graduated in 1908 from the University of Louisville in Louisville, Kentucky. Dr. Barker practiced in Kansas City for the past 30 years and served as a member of the staff of the Bethany Hospital during that time.

Surviving are his wife, Mrs. Dennie Barker; two sons, McRae D. Barker, and Carlton E. Barker; six grandchildren, two brothers, and two sisters.

JOHN A. CRABB, M.D.

Dr. J. A. Crabb, 91, Topeka general practitioner, died March 17 in a Topeka hospital.

He was born on June 4, 1869 in Brown County, Illinois. He came to Kansas when he was 13 years old with his family. In 1906 he graduated from the University of Kansas School of Medicine. In 1954 he retired on his 85th birthday after 48 years of active practice.

He is survived by two sons, Ray Crabb and Herbert Crabb; one daughter, Miss Emma Crabb; three grandchildren, and seven great-grandchildren.



Blue Shield

An Examination of Government-Controlled Health Insurance

THE CONSEQUENCES AND IMPLICATIONS of compulsory government controlled health insurance schemes which today threaten the free enterprise system of medical care in the United States and Canada, were examined in detail by a number of prominent and well-qualified speakers during the 16th Annual Western Conference of Prepaid Medical Service Plans held in Winnipeg in October. We feel that Kansas physicians will be particularly interested in the highlights of this outstanding conference. The following excerpts are taken from the December, 1960 *Newsletter*, monthly publication of the National Association of Blue Shield Plans:

PROFESSOR F. A. HAYEK, Committee on Social Thought, University of Chicago, indicated that we are likely to progress more satisfactorily in our political, economic and social endeavors, if we continue to employ individual responsibility and initiative in seeking solutions to whatever problems may arise in the future.

In relating these remarks to the specific problem of compulsory government health insurance, Professor Hayek emphasized that "... if we do not wish to bring to an end that process of moral growth which has always relied on the free choice of the individual; if we do not want to supplant this by a system in which the opinion of appointed authority is called upon to decree the values which are to be imposed upon the people ... we must avoid the creation of any monopoly to whom the provision of all medical services is completely entrusted."

Professor Hayek further implied that simply because government has taken steps to assist and in some cases financially support the growth of prepaid medical plans, this need not be taken to indicate that we have passed the critical point in our struggle to preserve private medicine.

"The critical choice in most parts of the world is still before us," Professor Hayek asserted. "What I am anxious about is that people should see that the transition to a single free government health service is not just another step in the direction in which we have long been moving, but a new and radical departure into something alien to the moral tradition of a free society.

"I believe," Hayek maintained, "that the difference between a free government health service and the government assisting in the growth of various competing schemes of prepaid or insurance plans is the difference between imposing upon people somebody else's values and assisting people in the pursuit of their own values. I feel very strongly that it would be a moral calamity if our impatience to assist as many people in the relief of suffering as rapidly as possible and as completely as we can, should prevail at the expense of that experimental process in which the individual, making his decisions in particular moral dilemmas, contributes to the growth and formation of a more definite moral system.

"I fear, in short," Professor Hayek concluded, "that such a victory of a high moral ambition might well destroy its own basis, i.e., that modest degree of moral consensus or agreed values which we have now achieved."

DENIS R. J. GEORGE, Vice-President and Director, William M. Mercer, Limited, described the inroads that have been made thus far in Canada by the proponents of socialized medicine and expressed his belief that the Canadian population, in general, would today accept compulsory government medical care if it were introduced. However, he emphasized that many of these people do not realize that a comprehensive state medical plan may well increase over-

(Continued on page 246)



Personalities—IN KANSAS MEDICINE

Edward D. Greenwood, M.D., Topeka, has been selected as President-Elect of the American Orthopsychiatric Association, Inc.

William J. Reals, M.D., Wichita, was a speaker at the meeting of the College of American Pathologists in New Orleans, February, 18-19.

Newly elected officers of the Kansas Obstetrical Society are: **Arnold Baum, M.D.**, Dodge City, president; **David Gray, M.D.**, Topeka, president-elect; **Galen W. Fields, M.D.**, Scott City, vice president; **Jack Schroll, M.D.**, Hutchinson, secretary-treasurer.

Dr. N. H. Overholser, El Dorado, presented a program on "Use of Hypnosis in Medicine" on March 16, at a science seminar.

Dr. Thomas P. Butcher, Emporia, was a guest in a news conference on "High Medical Costs" on WIBW-TV, Thursday, March 16.

Dr. C. M. Barnes, Seneca, was in Chicago where he attended the National School Health meeting which was held during the first part of March.

James T. Naramore, M.D., Larned, superintendent of the Larned State Hospital, was "commended and congratulated for his 40 years of service to Kansas" in a resolution adopted by both Houses of the Kansas Legislature. The resolution was read to him at an "appreciation day" program in the Larned Hospital auditorium.

Dr. W. J. Reals, Wichita, President of the Sedgewick County Medical Society, has been appointed a member of the professional committee to choose Kansas recipients of the National Foundation's 1961 Health Scholarships.

"Current Therapy" was the subject for the postgraduate medical study offered in Concordia March 28 at St. Joseph's Hospital by the Department of Postgraduate Medical Education of the University of Kansas School of Medicine.

Doctors lecturing and leading the discussion were **Robert E. Bolinger, M.D.**, associate professor of medicine and gerontology at Kansas University; **John R. Carter, M.D.**, professor of pathology and chairman of the department at K. U.; **Don R. Miller, M.D.**, assistant professor of surgery at K. U.; and **Edward J. Walaszek, M.D.**, associate professor of pharmacology at the University of Kansas.

Dr. T. L. McNutt, formerly of Ellinwood, has become associated with the Dodge City Medical Center. He plans to specialize in obstetrics at the clinic.

B. L. Gardner, M.D., and **J. H. Depoe, M.D.**, announce the opening of their office for the practice of medicine and surgery in Winfield. They plan to maintain their offices in Douglass as in the past and will continue to do so as long as possible.

The fifth of the sixth Post Circuit Courses from the University of Kansas Medical Center was held in Arkansas City on March 30. The Symposium on "Neoplastic Diseases" included discussions on radiology, internal surgery and pathology.

Dr. Colvin H. Agnew, assistant professor of radiology, discussed "The Present and Future of Radiation Therapy." **Dr. John F. Christianson**, assistant professor of medicine, had as his subjects "Adequate Cancer Detection Examinations" and "New Agents and Methods in Chemotherapy." **Dr. Stanley R. Friesen**, professor of surgery, discussed "Principles of Surgical Management" and "Biopsy Procedures." And the fourth speaker was **Dr. Donald J. Svoboda**,

(Continued on page 246)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

CURING A COLD

We would say this is the worst time of the year to have a cold. With the weather bouncing from chilly to warm to balmy to raw the pesky thing—generally called a common cold, although we don't know why as for us, at least, a cold is a cold and the symptom, or misery, is a runny snout that periodically plugs up accompanied by a tickle above the larynx.

The American Medical Association describes a cold as a nose and throat infection that lasts about a week and will disappear naturally in due time. There are all kinds of remedies. Most don't seem to prolong the agony. Not to dispute the learned AMA nor the claims of propounders of remedies, we are of the opinion, drawn from experience, that if you leave a cold alone it will hang on for two weeks, if you resort to treatment you can get rid of it in 14 days.—*Hays Daily News*, March 14, 1961.

IN TRADITION

Some well-meaning Americans are being lulled into an apathy that could sacrifice on the altar of bureaucracy the private and local responsibilities for large segments of our medical system. Instead of tackling problems as forthrightly and tirelessly as the researchers do, some suggest that you "let Uncle Sam do it for you." But superimposing on our lean and vigorous medical system a massive federal bureau would only result in spiraling taxes and new roadblocks, slowing the march of medical progress.

More important, you can't legislate standards of health care. Only the best will do. There can be no bargaining basement medicine or cut-rate hospitals.

There's really no mystery about today's hospital costs. More than 65 cents of each dollar hospitals re-

ceive is earmarked in advance for payroll. This trend will continue because hospitals require higher-trained personnel to cope with unending growth in hospital technology.

The only practical hope of holding the cost line is through research and development of new products, new medical techniques and new concepts in health institutions. It is in this area that the pumps of research should be primed and community initiative stimulated.

The proven performance of medical science, hospitals and industry is extending the horizons of health through research and discovery is in the best American tradition of perpetual achievement. On this pathway of success is the answer to the mounting cost of health care. Here, inviting renewed effort with rolled-up sleeves and inquisitive minds, is the way to cut the cost of good health. Here, too, inevitably, is better health for all.—From Annual Report, American Hospital Supply Corporation, 1961.—*Kansas City Kansan*, March 22, 1961.

A TRAITOR TO MEDICINE

Dr. R. Bernard Finch has been convicted of murdering his wife. But his secondary crime is perhaps more fearful: he has betrayed his profession.

Most laymen look upon all doctors as saints; men without passion or sin, men without emotions. Not all laymen will admit this. Outwardly they say all doctors overcharge and do not come to work until 10 a.m. every day. They complain if they have to read a magazine in the waiting room and accuse the doctors of being in cahoots with the corner druggist or the Blue Cross to swindle the public.

But underneath these fabricated gripes is a blind respect for physicians. "Doc" is the most honorable title a man can earn. And it does have to be earned.

It takes up to 12 years to become a doctor, and not one of those years is easy. They are crammed with hard and often grueling work. Internship is said to have the lowest rate of pay for the highest degree of skill of any job on earth.

The first years of practice are hard, and wealth does not come quickly. Some think financial independence comes the instant a man becomes a doctor. It should, but it does not. Patients always wait to pay for the doctor last, after the television and the motorboat and the split-level home. But doctors don't seem to mind. They ignore the abuse and go on saving lives if they can, healing wounds and curing sickness. In time of severe sickness or injury, no mortal on earth is more important. The doctor is sworn to his job and he will do his best.

Most laymen would not take the physician's job if they could have it, even without the long preparation, for the doctor seldom has any time of his own. He is sworn to go to work the instant he is needed, no matter where or when.

The physician consecrates his life to saving life and to healing. He can be forgiven for sins of the flesh, theft, embezzlement, or horse stealing, but never for taking a human life.

R. Bernard Finch no longer deserves to be called doctor.—R. C.—*Emporia Gazette*, March 30, 1961.

The Business Side of Medicine

(Continued from page 239)

Let's use the partnership of Doctors A, B and C as an example of a partnership insurance problem and its solution. These Doctors own an office building and equipment valued at \$54,000 and have accounts receivable of \$39,000. In the event of death the cost of liquidating would be \$31,000 per man. Doctor A is 57 years old and independently wealthy. He has a physical condition that would increase his life insurance cost by 20 per cent. Doctor B is 41 years of age and could easily borrow funds to purchase his share of a partner's interest. Doctor C is 29 and has no resources whatsoever. His maximum credit would be about \$5,000.

Following is the solution they chose. Accounts receivable were made self-liquidating; in case of death they would be frozen and each partner paid his interest as they were collected. A clause in their partnership agreement provides that surviving partners have the option of paying off the deceased partner's interest either in full or over a period of five years, with minimum payments of \$300 per month at 5 per cent interest. Each Doctor has his own credit and resources as added protection and the surviving Doctors also have a mortgagable building which could provide \$25,000 to \$30,000 purchase money at 5½ per cent.

We feel in this case that their solution is much more workable than an extremely high-cost insurance plan.

In summary, we believe that large life insurance programs *generally* are not necessary for professional partnerships and that the insurance premiums can be used by the Doctors with less resources to provide much-needed insurance protection for their own families. There are, of course, individual exceptions, since this is only *generally true*. An extensive individual study should therefore be made by the partners, their attorneys and their financial advisors before a program of life insurance is adopted. Such a study will determine whether a need exists for partnership life insurance and, if so, how large a program is necessary.

Blue Shield

(Continued from page 243)

all costs without improving the level of medical care and he urged the Canadian medical profession and the prepayment plans to develop imaginative and progressive educational programs designed to expose the implications of compulsory medical care to the reason of thinking individuals.

He further stated that physicians can individually help to preserve private medicine by cooperating with underwriters in restricting the abuse of health insurance privileges. And he also asserted that the medical profession must not hesitate to meet with political leaders to discuss the entire problem of what means should be taken to provide the best possible medical care coverage.

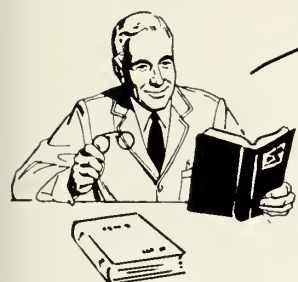
"I think," George continued, "that the doctor-sponsored plans together with the commercial underwriters should take a good look at their contracts and extend coverage to as large a segment of the population as possible, without overlooking the possibility of a compromise between the doctors and the government in the care of the aged and indigent. Whereas state medicine may appear to a great number of people to be a benign growth, it can, in fact, be an extremely malignant one, and appropriate action should be taken immediately (to preclude its adoption)," he concluded.

Personalities

(Continued from page 244)

whose subject was "Survey of Common Cancer in Kansas." Dr. Svoboda is a fellow in pathology.

Dr. Tom A. Montgomery, Sabetha, attended the University of Nebraska College of Medicine's postgraduate course on Obstetrics and Gynecology, March 30.



Book REVIEWS

FUNCTIONAL NEURO-ANATOMY INCLUDING AN ATLAS OF THE BRAIN STEM, fourth edition, thoroughly revised. A. R. Buchanan, M.D., 377 pages, 273 ills., 18 in color. \$8.50, 1961, Lea & Febiger, Philadelphia.

The fourth edition of this book presents neuro-anatomy from a functional point of view, making it useful for the general practitioner who will find information available for general neurological examinations. The book's value lies in its condensed form, without sacrifice of essential facts. The presentation of material is given in such a way that there is an easy progression from basic ideas to the more complex inter-relationships which is so characteristic of the nervous system. This is particularly true of the efferent pathways: the pyramidal and extrapyramidal systems.

The chapters dealing with this complex read well and will be found helpful in understanding motor disabilities. Newer knowledge of the physiology of the basal ganglia and reticular formation brings this within the usefulness to the practicing physician. The hypothalamus is presented well.—*P.G.R.*

CIBA FOUNDATION COLLOQUIA ON ENDOCRINOLOGY. Vol. xiii, *Human Pituitary Hormones*; edited by G. E. W. Wolstenholme and Cecilia M. O'Connor. With 336 pages and 86 illustrations, published Little, Brown and Company, Boston.

This book contains a number of articles by authorities investigating the relatively new field on human pituitary hormones. Most of the material presented here is not new but does represent a collection of information which is otherwise scattered rather widely throughout the literature. Most of the presentation centers about studies on human growth hormone and pituitary gonadotropin. There are several articles, however, on human ACTH and melanocyte stimulating hormones. As with most presentations of this type the coverage is not of a type which would be of interest to a person not working

directly in this field and at the same time is not complete enough for one who is working in the field. The main value of this collection however lies in the discussions which appear at the end of each article and present a sampling of the various view points.

The most important presentations concern the metabolic actions of human growth hormone, including a prompt anabolic effect with retention of nitrogen, phosphorus and potassium, a negative calcium balance and a retention of sodium and chloride. Two authors described the lack of a growth hormone effect on aldosterone secretion. The other effects of growth hormone which were noted were an increase in diabetic tendency and ketonuria in diabetes and an increase in the plasma free fatty acids occurs.—*R.E.B.*

STROKE. Douglas Ritchie, Doubleday & Co., New York, 1961, 192 pages, \$3.50.

A biography of determination written by reporter-broadcaster Douglas Ritchie. He was just fifty when he felt "the first alarming twitch in his cheek" which was the start of a major cerebral thrombosis. Easy to read and understandable to laymen, it is "must" reading for anyone close to one of the thousands of people who are stricken each year.—*E.A.M.*

EPIDEMIC. Frank G. Slaughter, Doubleday & Company, 1961. 286 pages, \$3.95.

This book tells the story of modern methods used to isolate and control epidemic diseases. The author has skillfully blended together the three public enemies, bacteriological warfare, infiltration by subversive elements, and epidemic disease, into a novel so fascinating that the reader was unable to lay it down until finished.

Written in language the public can understand, this book should be widely read in schools and colleges where its story of the fight against disease, subversive and biological warfare, would create a lasting beneficial imprint.—*G.L.T.*

The Kansas Medical Society—1960-1961

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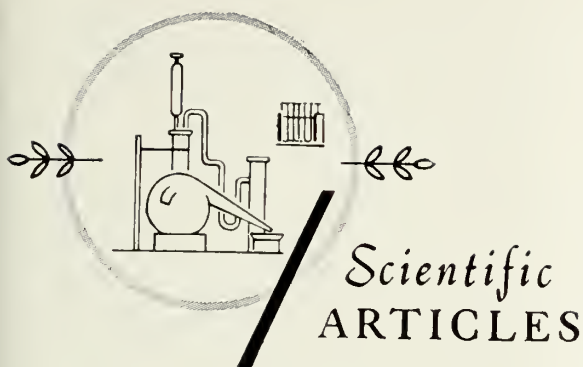
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Infectious Hepatitis in Pregnancy

*. . . usually due to infectious hepatitis
. . . relatively uncommon, but not rare . . .*

MAHLON DELP, M.D., ROBERT MANNING, M.D., and
ROBERT WEBER, M.D.,* *Kansas City*

FOR MANY YEARS PHYSICIANS and all others too frequently attribute directly or through devious rationalization every illness of the pregnant woman to the pregnancy itself. For centuries pregnancy has seemingly been considered a capricious curse whose myriad manifestations must be borne unquestioningly, no matter how quaint, curious or outlandish. More complete knowledge of physiology has brought the realization that there are fewer and fewer disease entities which can be claimed unique to pregnancy. In some, it is true that the peculiar demands of normal pregnancy may alter disease manifestations, progress or even prognosis for certain ailments common to the pregnant and nonpregnant woman. Only within the past ten years have we discarded the entity "acute yellow atrophy" as such and particularly its claim for unique status in pregnancy; it has been disclosed as simply a virulent fulminant form of infectious hepatitis.

The lag in knowledge of the important place the liver plays in human bodily economy and our amazing ignorance of infectious hepatitis until recently have helped to perpetuate much of the medical folklore concerning jaundice. Singularly so has been jaundice in pregnancy. But of late diseases of the liver and the usual attendant jaundice found in the occasional pregnant patient are being considered in

a rational scientific manner, as is heart disease and pregnancy, freed of the implication that pregnancy imposes a distinctly etiological feature to the symptom complexes.

Jaundice in pregnancy is usually due to infectious hepatitis. The normal liver in the nonpregnant woman is also normal during her pregnancy and tolerates disease well.

Infectious hepatitis does show affinity for the third trimester of pregnancy. Aside from the hazards of prematurity, the child fares well. As yet, no evidence exists to substantiate worry over organogenetic marking of the child.

Analysis of a given medical problem concerning the pregnant woman does impose certain additional areas of consideration for the student or physician. For instance, an infectious disease in the pregnant woman has the potential of (1) producing serious illness in the mother, (2) *interruption of the pregnancy*, (3) destruction of the fetus, (3a) transmission of the disease to the baby, or (4) permanently marking the baby with congenital defects. The real dangers to mother and child, plus the emotionalism

* From the Department of Medicine, University of Kansas School of Medicine.

surrounding the problem of the ill and expectant mother, make the physician's responsibility seem almost too heavy at times. All such matters have a place in a discussion of infectious hepatitis in pregnancy.

The Liver in Pregnancy

In order to avoid superficiality, a few comments bearing upon this matter are apt. There are no documented derangements of liver function charged solely to pregnancy. A slight rise in alkaline phosphatase and an even greater increase in the serum levels of other enzymes utilized in various batteries of liver function tests are the only values altered in pregnancy.

Histologic studies from liver punch biopsies done on pregnant women show no abnormality.¹

The estimated hepatic blood flow (EHBF) is not altered; although pregnancy itself is normally accompanied by an increase in blood volume so that the EHBF percentage of total blood volume is somewhat decreased, particularly late in pregnancy when the increase in total blood volume is greatest.²

Spider nevi and liver palms are frequently striking physical signs noted in liver disease as well as in pregnancy. Perhaps in both situations these features are due to excessive circulating estrogens, physiological and normal in pregnancy but not so in liver disease.

Even though it seems that pregnancy does not impose more than physiological demands upon the liver, we cannot summarily dismiss the possibility that certain physiological alterations unique to pregnancy may adversely affect the liver injured by any of the numerous noxious agents capable of such.

Viral Hepatitis

This disease may be defined as a systemic illness having distinctive hepatic lesions caused by hepatotoxic viruses which have not yet been satisfactorily identified. In America there is a popular belief in the existence of two viruses designated as virus A and B. The clinical syndromes associated with these viruses have been variously termed I. H. Hepatitis, S. H. Hepatitis, infectious hepatitis, homologous serum jaundice and needle hepatitis.

It is not the purpose of this discussion to elaborate upon the general features of infectious hepatitis but to examine more closely the problem in pregnancy. Thousands of articles dealing with hepatitis have been published during the past twenty years, but few treat the more restricted group of pregnant women. We may infer from this that it is relatively less common and perhaps rarely serious.

Evidence exists, both clinical and experimental, that certain viruses can pass from the maternal circulation through the placenta and infect the fetus in utero. This is true in vaccinia, chicken-pox, and mea-

sles, but has not been demonstrated in poliomyelitis. Zonde and Bromberg observed 29 women with hepatitis during pregnancy without observing hepatitis in any of the babies.³ In two cases, delivery occurred at the beginning of the ninth month of pregnancy shortly before hepatic coma and death; and the infants in both, although premature, were normal. Hsia, Taylor and Gillis also observed a group of women with known infectious hepatitis during pregnancy and were unable to find any evidence of hepatitis in their offspring.⁴ This has also been our experience, even though the mother is jaundiced at the time of delivery. It appears that transplacental transmission of infectious hepatitis virus is quite rare.

Hepatitis, however, has been observed in new-born infants. In one series of 12 cases reported by Stokes and his associates, it was possible to transmit the disease to human volunteers from the blood of both a baby and his mother.⁵ In another instance, a mother gave birth to three successive infants who died of hepatitis. It is likely that she was an asymptomatic carrier of serum hepatitis virus. These reports would suggest a variation in the transplacental transmission of infectious hepatitis virus and serum hepatitis virus, but further evidence is necessary before any conclusion should be made.

There is evidence to indicate an increased incidence of infectious hepatitis during the latter months of pregnancy. This probably occurs because of greater susceptibility during this period and, consequently, more obvious clinical manifestations. Infectious hepatitis and poliomyelitis have similar epidemiological characteristics. The majority of the patients with each infection are not recognized because the diagnosis is not suspected until jaundice or paralysis is apparent. The increased frequency of severe paralytic complications of poliomyelitis during pregnancy is paralleled by the frequency of jaundice in the pregnant patient with infectious hepatitis. The apparent decreased incidence during the first half of pregnancy is most likely the result of more nonicteric cases.

Predisposing factors, such as needle punctures and possibly close association with youngsters, are greater in the pregnant female and are also responsible for the increased incidence of viral hepatitis in pregnancy.

Differential Diagnosis

Signs and symptoms of infectious hepatitis are no different in the pregnant female than in the non-pregnant. Initial symptoms and signs are usually those of anorexia, nausea, vomiting, dark urine, and possibly clay-colored stools. If in early pregnancy nausea is present, one of the earliest manifestations may be confused. Jaundice usually appears within the first week of symptoms and is quite often associated in its appearance with an amelioration of the gastrointestinal symptoms. Itching of the skin is not regularly

seen. Fever is not often high nor a significant feature. Pain is usually slight and frequently is manifested only by vague upper right quadrant tenderness secondary to swelling of the liver. A palpably enlarged liver is difficult to discover late in pregnancy and likewise splenic enlargement is often obscured. Percussion of the liver, however, is usually possible and in the fulminant disease with acute massive necrosis of the liver, decreased liver dullness to percussion may be an ominous sign.

Gastrointestinal symptoms of anorexia, nausea, and vomiting coming on insidiously are very suggestive of infectious hepatitis and parenchymal liver cell damage. Confirmation of this suspicion is usually revealed in the liver function tests showing moderate elevation of the serum bilirubin, normal alkaline phosphatase, positive cephalin cholesterol, flocculation, decreased cholesterol and esters, increased SGOT, SGPT, and increased serum iron. It should, however, be stated categorically that hepatitis may be so mild that no abnormality of any of such tests may be noted.

Obstructive jaundice is classically heralded by gallstone colic in the childbearing female. Its characteristic clinical format is well known. Liver function tests here will show elevation of the serum bilirubin, elevation of alkaline phosphatase, elevation of the serum cholesterol and normal cephalin cholesterol, SGOT, SGPT, and serum iron. Gallbladder visualization likely will be helpful at some stage in the examination of the case with calculous obstruction.

Hemolytic processes giving jaundice in the female are uncommon and usually surrounded with quite dissimilar clinical features. The decreasing red blood count, high indirect serum bilirubin, reticulocytosis and dramatically increased fecal urobilinogen will differentiate this entity from infectious hepatitis.

We must still deal with an entity "recurrent jaundice of pregnancy" recently described by Svanborg and Ahlsson⁶ and felt to be uniquely related to pregnancy. The unusual features are that it occurs and recurs in the same pregnant females; it has clinical signs and liver function values similar to those seen in extrahepatic or intrahepatic obstructive jaundice as might be seen with impacted stone or chlorpromazine jaundice. Its clinical background lacks elucidation.

Case Reports

CASE I, E. T. Hospital No. 50-469. A 37-year-old white gravida VII para VI was admitted to K.U.M.C. November 19, 1951 in labor and ten hours later spontaneously delivered single-ovum female twins weighing 3000 and 2970 grams respectively. Both were quite normal. Upon entrance the patient was complaining of headache, fever, and cough of one week's duration. There were no gastrointestinal symptoms.

The patient had fever of 102.2° F. The liver was enlarged downward five centimeters and was quite tender. Two days following delivery the patient was clearly jaundiced. The spleen was not palpable. A liver punch biopsy confirmed the impression of damage compatible with infectious hepatitis. At strict bed rest the patient slowly improved and was dismissed on January 9, 1952. The twins at follow-up have remained normal, as has the mother.

Comment: This case of infectious hepatitis in pregnancy went unrecognized until two days following delivery, even though symptoms began a week prior to the onset of labor. Though the children were born during the mother's most infectious stage of her illness, neither contracted the disease.

CASE II, L. S. Hospital No. 52-2857. A 30-year-old white female gravida VI Para V was admitted to K.U.M.C. March 19, 1952 complaining of jaundice and a skin rash. Three weeks prior to admission the patient developed a respiratory infection associated with cough, fever, malaise and loss of appetite. One week prior to arrival at the hospital generalized mild urticaria developed and three days later jaundice appeared. Anorexia persisted and became associated with nausea and diarrhea. The patient was referred to the hospital with abdominal cramps thought to be uterine contractions. There was icterus of the sclera, skin and mucous membranes. The liver was not palpated and no tenderness was noted. The spleen was not palpable. An erythematous papular rash, in addition to many scratch marks, was noted over the arms. At bed rest and on a high carbohydrate diet the patient improved rapidly. Seven days after admission the patient delivered spontaneously a normal male infant of 2975 grams after a labor of less than two hours.

Comment: The early symptoms of this patient's infectious hepatitis were somewhat more severe but subsided very satisfactorily.

CASE III, V. R. Hospital No. 51-32150. This patient was admitted to K.U.M.C. on July 6, 1954 on the Surgical Service for resection of a lung abscess for which she had received continuous treatment from February of 1954. At the time of admission, in addition to complaint of cough and fever, the patient reported that she had, within the previous several days, developed nausea, vomiting and dark urine. She also reported that she had missed her last menstrual period. Physical examination revealed a fever of 99.6° F. She clearly had icterus of the sclera, the skin and the mucous membranes. The liver was palpable and tender four fingerbreadths below the right costal margin. The spleen was not palpable. Aside from the chest findings, the remainder of the physical examination was normal. Subsequent examination by the gynecologist revealed that the patient was pregnant. The patient remained in the hospital on the medical serv-

ice until July 31, 1954, being treated for infectious hepatitis. Her recovery was rapid. Subsequently the patient was re-admitted for resection of the lung abscess; but once more, because of the pregnancy, was dismissed from the hospital and her child was delivered at another institution. This labor was uneventful and the child was perfectly normal.

Comment: This patient, of course, had received innumerable injections for treatment of her lung abscess and had ample opportunity to become infected. It seems very clear that she did have a serum hepatitis of only moderate severity. Of additional interest is the fact that this patient returned to K.U.M.C. on November 28, 1956 with a tubal pregnancy and was successfully operated.

CASE IV, G. D. Hospital No. 57-2056. A 17-year-old white female, gravida II para I was admitted to K.U.M.C. on May 8, 1958 with a chief complaint of nausea and vomiting. The expected date of delivery was June 8, 1958. The prenatal course had been negative except for vomiting during the first four months of pregnancy. Forty-eight hours prior to admission the patient had developed backache, chills, fever, nausea and vomiting. She felt that there had been some increase in darkness of the urine during the previous 24 hours. The temperature was normal. There was very mild icterus of the sclera. The liver and the spleen were not palpable. At bed rest the patient's symptoms cleared promptly. During her hos-

pitalization it was learned that the patient's husband was also jaundiced and under treatment for acute infectious hepatitis. After thirteen days of hospitalization the patient was dismissed. On July 25, 1958 she was re-admitted in labor and spontaneously delivered a 3785 gram female infant who was normal in all respects. The patient was dismissed from the hospital on July 29, 1958. Both she and the child remained normal.

Comment: A contact source for this mild infectious hepatitis was revealed in the history.

CASE V, E. T. Hospital No. 58-7079. This 23-year-old colored female, gravida III, para II was admitted to K.U.M.C. on July 30, 1958 after having made only one prenatal visit. She was in labor at the time of admission and after three hours delivered spontaneously a 3150 gram male infant. The child appeared perfectly normal at the time of delivery and at the 24-hour examination. By the end of 48 hours this child was markedly jaundiced and remained in the hospital until September 4, 1958. Exhaustive studies and a prolonged period of observation resulted in a diagnosis of probable serum hepatitis in this infant delivered of a mother who was completely free of any signs or symptoms which might have suggested infectious hepatitis. Aside from the evidence of hepatitis which the infant had, there was no other abnormality. Recovery was complete and follow-up reveals the child subsequently to be normal.

OBSTETRIC DATA

| Patient | Age | Gravida | Para | Abortion | Premature Deaths | Duration PTA | Stage OP Gestation | Delivery | Infant Weight | Comments |
|---------|-----|---------|------|----------|------------------|--------------|--------------------|----------|---------------|-------------------|
| 1 | 38 | 14 | 9 | 3 | 1 | 1w | 9m | FT | 3000 2970 | Twins |
| 2(N) | 29 | 3 | 1 | 1 | | 1w | 2m | 8m | 2865 | |
| 3 | 30 | 7 | 6 | | | 5d | 8+ | 8+ | 2975 | |
| 4 | 21 | 3 | 2 | | | 2w | 7½ | 8 | 2560 | |
| 5 | 23 | 3 | 2 | | | 0 | 9 | FT | 3150 | Infant Jaundiced |
| 6 | 16 | 2 | 1 | | | 2w | 7+ | 7+ | 2300 | |
| 7(N) | 18 | 1 | 0 | | | 1w | 7+ | 8+ | 3095 | |
| 8 | 35 | 7 | 5 | 1 | | 1w | 7 | 7 | 1900 | Patient Expired |
| 9 | 17 | 2 | 1 | | | 1w | 9 | FT | 3785 | |
| 10(N) | 18 | 3 | 2 | | | 1w | 7 | FT | 3010 | Hemolytic Disease |
| 11(N) | 20 | 2 | 1 | | | 2w | 7½ | FT | 3430 | Hbg SC Disease |

DISEASE DATA

| Patient | Signs | | | | | | Symptoms | | | |
|---------|----------|-------------------|--------------------|-------|--------|----------|----------|--------|---------|------|
| | JAUNDICE | LIVER ENLARGED | SPLEEN ENLARGED | FEVER | NAUSEA | VOMITING | DIARRHEA | ACHING | DYSURIA | COMA |
| 1 | + | + | | + | | | + | | | |
| 2 | + | + | | | | | + | | | |
| 3 | + | + | | | + | | + | + | | |
| 4 | + | | | | + | + | | | + | |
| 5 | - | - | - | - | - | - | - | - | - | - |
| 6 | + | + | | | | | + | | | |
| 7 | + | | | | | + | | | | |
| 8 | + | Ascites | | + | + | + | | + | | + |
| 9 | + | + | | | + | + | | + | + | |
| 10 | | | | + | + | + | | | + | |
| 11 | + | + | + | + | + | + | | + | | |

Comment: Only the child's illness, which was studied thoroughly, revealed the probable presence of a subclinical infection in the mother.

CASE VI, E. A. Hospital No. 57-11222. This 21-year-old Mexican female, gravida III para II was admitted to K.U.M.C. on August 15, 1958 with the complaints of malaise, nausea and lower abdominal pain. She had noted dark urine on the day of hospitalization. The patient was not aware of any fever and there had been no diarrhea. Epidemiological history was negative. Physical findings were not remarkable, but the patient was mildly jaundiced. The temperature was normal. The liver and spleen were not palpable. There was very mild tenderness in the right upper quadrant. The patient was retained in the hospital at bed rest and under observation. On September 1, 1958, the 257th day of gestation, the patient delivered spontaneously a 2560 gram female infant. The child was perfectly normal in all respects. By September 9, 1958 the patient had completely recovered and was dismissed from the hospital. At this time the child remained quite normal.

Comment: There seems little doubt that this patient had a rather typical mild infectious hepatitis which terminated without complication.

CASE VII, E. S. Hospital No. 58-11075. This 18-year-old female, gravida I para 0 in the seventh month of her pregnancy entered K.U.M.C. August 25, 1958 complaining of jaundice, nausea and dark urine of seven days duration. She denied contact with other jaundiced individuals, injections, or medications which could be incriminated. Two months previously she had blood drawn for a serological test for syph-

ilis. Examination revealed obvious icterus of the sclera. The temperature was normal. There was slight tenderness of the liver but it was not enlarged. The spleen was not palpable. On bed rest and liberal diet the patient rapidly lost her jaundice and was dismissed on September 16, 1958. On October 16, 1958 she was re-admitted in labor and within two hours spontaneously delivered a normal 3095 gram male infant. On this occasion all liver function tests were normal.

Comment: This seems clearly a mild form of infectious hepatitis, although identification as the IH or SH variety was not possible.

CASE VIII, W. D. Hospital No. 58-9003. A 16-year-old white female gravida II para I was admitted to K.U.M.C. August 28, 1958 complaining of diarrhea, clay-colored stools and dark urine of one week's duration. Her expected date of delivery was October 21, 1958. The patient had felt unusually fatigued and lacked appetite but had no nausea or vomiting. A brother living with the patient had been ill two weeks and jaundiced one week. She had received no injections for one year. The patient was jaundiced. The liver and spleen were not palpable. On the seventh hospital day the patient spontaneously delivered a premature 2300 gram female child, otherwise normal, after a two-hour labor. At bed rest and with a liberal carbohydrate diet the patient did well. She was dismissed on September 20, 1958. The follow-up of the mother and child revealed no untoward developments.

Comment: Although initially the mother was quite uncomfortable and her labor developed prematurely,

the course was benign. Here again it was possible to establish a contact with infectious hepatitis.

CASE IX, M. R. Hospital No. 59-99-17. This 34-year-old white female, gravida VI para VI was admitted to K.U.M.C. July 6, 1959. During the seventh month of her pregnancy and three weeks prior to her admission here, the patient first noted an icteric tinge to the sclera along with mild but vague symptoms of nausea. She was immediately hospitalized in her local community and on the second day after hospitalization spontaneously went into labor, delivering a 2000 gram male infant. The child appeared premature but normal and was non-jaundiced. Following delivery, the patient's jaundice continued to deepen; however, she denied any major symptoms such as chills or fever. In fact, the patient admitted only a mild degree of indigestion and some tenderness in the upper right quadrant. Immediately following delivery the abdomen seemed to return to normal size but then quickly became distended. There was no history of contact with other jaundiced individuals and no history of medications nor injections which might have served as a source. Upon admission here the patient was markedly jaundiced and obviously had ascitic distention of the abdomen. The liver was not palpable. The spleen was not palpable. The blood pressure was 100/70. The pulse was 84 and regular. There was very slight pitting edema of the lower extremities. Throughout hospitalization this patient progressively deteriorated, with increasing jaundice, increasing ascites, oliguria, bleeding tendencies, and finally expired in hepatic coma 26 days after admission. The infant, while premature, developed nor-

mally and had no evidence of jaundice nor stigmata of congenital defects one month after birth.

Comment: This fairly typical care of fulminating acute infectious hepatitis would in the past have been called "acute yellow atrophy." The child is to date normal.

Discussion

As commented previously, extensive studies of the liver in pregnancy now reveal no real evidence of disturbed anatomy nor physiology that can be claimed as the sole result of the pregnancy in the normal female free of disease.^{1, 2} There is, however, no inherent immunity to infectious hepatitis related to pregnancy and the problem needs continued study. Ingerslev and Telium, long students of this specific problem, have reported observations on ninety-one cases of infectious hepatitis in pregnancy encountered over an eight-year period.⁷ They noted a crude correlation between the incidence of hepatitis in pregnancy and the incidence in the general population for any given year. In this Danish series the pregnant woman was more liable to hepatitis in the third trimester and the course was mild. Only one of their patients died. Peretz and associates, reporting sixty-five cases from Israel, again noted a greater incidence when an epidemic existed in the general population.⁸ They noted a greater incidence in the age group of mothers below 24 years. The trimester of pregnancy in which the disease usually appeared was the third trimester. Of the six deaths in this series, one died before delivery and five following delivery. All deaths occurred in the third trimester group, pointing up a repeated observation now of the increased virulence of the process

LABORATORY VALUES

| Patient | TSB | I'SB | AP | CCF | TT | TP | SA | SG | TC | SI | SGOT |
|---------|------|------|-----|-----|----------|------|------|------|-----|-----|------|
| 1 | 7.5 | 4.5 | 6.5 | 4+ | 17 | 5.80 | 3.60 | 2.20 | 110 | | |
| 2 | 8.0 | 4.6 | 4.4 | 4+ | 5 | 6.40 | 4.20 | 2.20 | 140 | 173 | |
| 3 | 5.3 | 3.6 | 4.8 | 0 | 3 | 5.20 | 3.72 | 1.58 | 294 | 174 | |
| 4 | 3.1 | 1.7 | 3.6 | 3+ | 7 | 6.15 | 2.70 | 3.45 | 151 | | 44 |
| 5 | | | | | Not Done | | | | | | |
| 6 | 5.9 | 3.7 | 2.7 | 3+ | 18 | 6.40 | 2.94 | 3.46 | 227 | | 23 |
| 7 | 19.6 | 11.6 | 3.3 | 4+ | 18 | 4.81 | 1.60 | 3.21 | | 86 | 81 |
| 8 | 22.0 | 12.0 | 4.7 | 4+ | 10 | 5.20 | 3.15 | 2.05 | 113 | | |
| 9 | 6.3 | 4.1 | 3.0 | 3+ | 32 | 5.07 | 2.79 | 2.28 | 212 | | 22 |
| 10 | 1.5 | 0.7 | 2.2 | | | 7.23 | 3.29 | 3.94 | 269 | 70 | 85 |
| 11 | 3.0 | 0.4 | 2.4 | | 4 | 5.60 | 3.18 | 2.42 | 131 | | 60 |

when related to or imminent to labor. Mickal, reporting a series of fifteen cases in this country, noted in the group simple, mild infectious hepatitis in thirteen cases and two severe fulminant cases.⁹

As with the mother, the prognosis for the child is good. In the Ingerslev-Telium series, the infant mortality was 15 per cent, chiefly because of the tendency to abort or go into premature labor.⁷ In Peretz' series there were five antepartum deaths, one intrapartum death, and three postpartum deaths due to prematurity.⁸ Mickal reported one premature stillborn child.⁹ In neither group was infection nor congenital marking observed in any of the survivors.

Of recent years there has been much concern about the development of organogenetic defects in the child as a result of viral infections in the pregnant mother. In no disease instance, however, has this been established as did Gregg in the case of rubella.¹⁰ Siegel and Greenberg have, during 1959, reported as careful a study of this problem for a group of virus diseases as we have seen.¹¹ They studied the effects upon pregnancy of rubella rubeola, chicken pox, mumps, poliomyelitis, and hepatitis. Out of those cases having hepatitis no deaths and no congenital deformities were observed. Mansell, observing two of his own cases and collecting nineteen from the literature, reported twenty-one cases of infectious hepatitis occurring in the first trimester of pregnancy.¹² In these twenty-one cases, five infants showed congenital defects and three pregnancies ended in abortion. No doubt, many cases of infectious hepatitis have occurred during the first trimester of pregnancy; since they were mild and uncomplicated, they have gone undetected or unreported. A final opinion concerning the possible organogenetic damage relationship in this disease cannot be given. Retrospective studies are notoriously inaccurate.

In our own small group of nine cases, one mother succumbed (case 9) in coma and manifesting severe hemorrhagic phenomena three weeks after spontaneous but premature labor. She was the oldest patient in the group. All other patients had mild diseases, manifesting few symptoms other than jaundice. Ingerslev and Telium have emphasized that many patients will manifest little other than jaundice and may have even relatively normal liver function studies.⁷

In the group of nine here discussed, two babies were premature. One child developed well authenticated infectious hepatitis in the postnatal period, even though the mother showed no evidence of the disease.

Of interest in our group is the fact that over a ten-year period from an obstetrical service delivering 16,546 babies, only nine cases of infectious hepatitis occurred. Four of these cases were seen in a period of four months in 1958.

Recognition of infectious hepatitis is dependent

upon the usually required alertness in examination and follow-up with liver function tests. The serum transaminase values are probably of distinct superiority in sharpening suspicion when other tests are equivocal.

An internist may encounter resistance in commenting upon treatment or management of infectious hepatitis in pregnancy, as is true with many other diseases complicating pregnancy; but certain remarks are noncontroversial. Prevention is certainly the real objective. Infectious hepatitis is an enteric infection. As with poliomyelitis, people living in houses with toilets delay acquisition of immunity and are more susceptible. The young are more susceptible. Contact with children and the many needleings which the expectant mother is subjected to suggest areas of caution. This disease is notoriously easy to transmit with the contaminated, improperly sterilized needle. In no situation is careful preventive technique against spread by inoculation so important because of the virus's obscurity and toughness.

The disease does, as with poliomyelitis, seem to have predilection for the pregnant woman in the last weeks of her pregnancy. It further seems to take on greater malignancy if present during labor. There is some evidence suggested by Ingerslev and Telium that delivery speeds the clearing of jaundice.⁷ These matters then suggest conservative management, since the disease is usually mild, at least until the fetus has reached 2500 grams. Then, if indicated, labor can be induced. If jaundice is developing rapidly, as might occur in a fulminate hepatitis, then labor probably should be induced promptly.

There is little to be gained with any form of medication in the massive hepatic necrosis of the severe infectious hepatitis. Blood transfusions, intravenous glucose, glutamic acid, arginine hydrochloride, and steroids are all used alternately and in combination, but in our experience with discouragingly negative responses.

Summary

Jaundice in pregnancy is usually due to infectious hepatitis. It is a relatively uncommon but not rare disease which infrequently results seriously to the mother or child. The normal liver in the nonpregnant woman is also normal during her pregnancy and tolerates disease well.

Infectious hepatitis does show affinity for the third trimester of pregnancy, vaguely suggesting a momentary lapse in resistance, as seems true in poliomyelitis. Labor itself seemingly aggravates this lowering of the defense walls. Premature labor with presentation of a premature child is another apparently common occurrence.

Aside from the hazards of prematurity, the child

(Continued on page 292)

Urology of Childhood

The Diagnosis and Treatment of Bladder Neck Obstruction in Children

JOHN D. FORET, M.D.,* *Kansas City*

IN THE PAST TEN YEARS or so there has been an increasing awareness of obstructive lesions at the bladder outlet in children. This often results in substantial changes in the urinary tract proximal to the point of obstruction, and may indeed direct attention away from the primary problem. It seems obvious that, generally speaking, the sooner such an obstructing lesion is diagnosed and a proper program of treatment instituted, the less will be the incidence and severity of obstructive complications affecting the bladder and upper tracts.

This paper concerns itself with 35 children with bladder neck obstruction treated at the Kansas University Medical Center between January 1955 and June 1960. There were 12 boys and 23 girls in this group. One additional patient underwent diagnostic studies but was returned to her home area for definitive treatment. All children with neurogenic vesical dysfunction have been excluded from this report.

There are several entities which may produce bladder neck obstruction in children and a number of theories concerning their etiology, none of which seem applicable to all cases. Congenital urethral valves are seen infrequently and can be distinguished from other causes of bladder neck obstruction only by radiologic and endoscopic diagnostic procedures. Many of these children will demonstrate a definite fibrotic contracture in the area of the internal sphincter. In other cases this is not obvious, but the consequences of obstruction as manifested by changes in the bladder and upper tracts speak for themselves. Bodian has found an abnormal submucosal fibroelastosis involving the entire posterior urethra in autopsy studies conducted on several young boys. Swenson claims there is a defect of parasympathetic innervation in some cases, and loosely equates the problem to Hirschsprung's disease. While no aganglionic area has been conclusively demonstrated, this concept is difficult to disprove. Fibrosis may develop as a consequence of recurrent urethritis or by habitual infrequent voiding. The concept of a "megacystis syndrome" has been widely discussed recently, but this seems a rather nebulous entity in which I feel there is some confusion between cause and effect. No at-

tempt was made to separate such cases in the present series.

The effects of bladder neck obstruction on other parts of the urinary tract are variable and rather unpredictable. In general, however, children seem less well able to compensate for such obstruction than elderly men with prostatism, and they seem much more prone to develop vesicoureteral reflux, hydro-nephrosis, and large dilated bladders.

Bladder neck obstruction in children is fairly common, but a high index of suspicion and complete urologic evaluation are necessary to establish the diagnosis. Retrograde cystography was our most informative single diagnostic study.

We prefer open vesical neck plasty for repair of bladder neck obstruction in girls, but still utilize transurethral resection as the method of choice in older boys.

Symptoms

The symptoms of bladder neck obstruction are variable and inconsistent, and some may escape notice unless one is particularly watchful. The problem is made more difficult by the fact that younger patients are unable to express themselves and some time may go by before anyone realizes that something is wrong.

Frequency and dysuria are usually the earliest symptoms, but often are not appreciated in younger children. Straining or a poor voiding stream likewise may make their appearance early in the course of the disease, or may even be present from birth. Again, this is a symptom that can easily be missed by a mother who is not particularly observant. Enuresis and poor daytime control will sometimes lead to investigation, but this is not a cause for concern until the child is two or three years old. Even then, it may be treated as a behavior problem for some time before urologic evaluation is carried out. Infection, which is really a complication of the obstructive problem, is probably the most common symptom leading to medical treatment. Here again, however, symptomatic treat-

* From the Department of Surgery, University of Kansas School of Medicine.

ment is altogether too often employed without conducting a complete investigation. Hematuria may accompany infection and in most cases does lead to investigation. Occasionally the finding of an abdominal mass may be the feature leading to evaluation. In the child who is so unfortunate as to fail to develop clinical sepsis early in the course of its disease, the presenting symptoms may be those of renal failure or associated hypertension and cardiac decompensation.

In our series sepsis was the most common primary symptom leading to evaluation, being seen in 16 patients. Another six patients were evaluated because of persistent incontinence or enuresis. Three patients were seen because of frequency and dysuria, three with symptoms of renal failure, three because of an abdominal mass, two for hematuria, and one because of abdominal pain. Only one child was evaluated because of a poor stream.

On further questioning, most patients were found to have more than one symptom, but no single symptom was seen in all patients. The detailed occurrence of symptoms appears in Table I.

TABLE I
SYMPTOMS

| | <i>Operated Cases</i> | <i>Total</i> |
|-------------------------------|-----------------------|--------------|
| Sepsis | 18 | 20 |
| Incontinence | 16 | 19 |
| Poor Stream | 4 | 7 |
| Frequency, dysuria, etc. | 21 | 25 |
| Renal Failure | 3 | 7 |
| Abdominal Mass | 3 | 4 |
| Hematuria | 3 | 3 |
| Abdominal Pain | 2 | 2 |

Diagnosis

The diagnosis of bladder neck obstruction in children is not difficult to make, but a complete urologic evaluation is necessary, as is a high index of suspicion. Urine analysis, urine culture, and blood nitrogen studies are routine in such an evaluation, and while this information is important, it is also non-specific. Excretory pyelograms should be done in all cases unless contraindicated by a history of iodide sensitivity or by nitrogen retention. A normal pyelogram by no means excludes the diagnosis, and one must especially watch for subtle changes such as mild ureterectasis in the absence of hydronephrosis or chronic pyelonephritis.

Determination of residual urine is a simple and worthwhile procedure, but must be carried out under aseptic conditions. Furthermore it is not always easy to get the child to void at the desired time. We feel

that the consistent presence of more than 10 or 15 cc. of residual urine in the bladder is a distinctly abnormal finding and is diagnostic of obstructive disease in most cases. As is the case with excretory pyelograms, the absence of residual urine does not exclude the diagnosis.

Although endoscopic examination should be done in all cases, I frequently find the information gained to be difficult to interpret. Especially in the female, visual obstruction is not always readily apparent and one must be very cautious in ruling out obstructive disease just because you can't see it. Trabeculation, if present, implies bladder hypertrophy and is a reliable finding indicating obstructive disease. Unfortunately, many patients apparently do not respond to obstructive disease by hypertrophy of the bladder as manifested by trabeculation, but instead their bladders decompensate early in the course of the disease and may be noted to be of large volume and poor tone at the time of endoscopy. A bladder diverticulum, if present, also speaks strongly for outlet obstruction.

Probably our most informative single study is the retrograde cystogram. This is best done with the patient awake and the bladder is allowed to fill by gravity. This is done by suspending a container filled with contrast medium about 15 cm. above the bladder level and connecting it to an indwelling catheter. Films may be taken in the A-P and oblique projections. Stewart has called attention to the value of delayed cystograms. At the conclusion of the study we attempt to secure a voiding film, since reflux may not occur until higher intravesical pressures are attained. With little children this is not always successful. The cystogram will demonstrate the volume and tone of the bladder, reveal trabeculation and diverticula, and, most important, may disclose the presence of vesicoureteral reflux. This is definitely an abnormal finding and is virtually diagnostic of

TABLE II
DIAGNOSTIC FINDINGS

| | <i>Operated Cases</i> | <i>Total</i> |
|-------------------------------|-----------------------|--------------|
| Nitrogen Retention | 4 | 8 |
| Abnormal Urine Analysis | 15 | 18 |
| Positive Urine Culture | 17 | 21 |
| Residual Urine | 16 | 21 |
| Reflux | 22 | 25 |
| Trabeculation | 13 | 14 |
| Visual Obstruction | 16 | 18 |
| Enlarged Bladder | 20 | 25 |
| Hydronephrosis | | |
| absent | 10 | 13 |
| unilateral | 4 | 4 |
| bilateral | 14 | 18 |

bladder neck obstruction if present. If allowed to persist without modification, it almost invariably will lead to deterioration of the involved kidney. A post-voiding film may serve as an indirect and reasonably reliable determination of residual urine. A detailed list of findings in our series of patients is presented in Table II.

Treatment

In milder cases of bladder neck obstruction, conservative treatment may be undertaken with rather indifferent expectations. This may consist of periodic dilation of the urethra and bladder neck, a high fluid intake, regular and frequent voiding habits, double voiding techniques, a program of perineal hygiene, and maintenance chemotherapy. Patients treated thusly must be followed closely and such treatment should be abandoned if there is no improvement over a reasonable period of time. It should not be utilized if more than minimal objective changes are discovered when the patient is evaluated. Although a number of our patients were initially treated conservatively, only three patients have made a good response. The others all eventually underwent an operative procedure on the bladder neck. Our pres-

ent feeling regarding conservative management is that one must be highly selective and that we cannot endorse its widespread use without considerable reservation.

Transurethral resection is a sound procedure in some situations, but in many persons' hands the results have been disappointing. Especially in girls, the difficulty in accurately assessing the obstructing tissue has led us to virtually abandon the procedure. In boys, especially those of school age, the obstructing tissue usually can be seen more adequately and transurethral resection remains our method of choice in these cases. This should always be done through a perineal urethrotomy to minimize the likelihood of urethral trauma leading to stricture formation. The exchange of a bladder neck obstruction for an urethral stricture is no bargain.

In the past several years, accompanying our increasing awareness of the incidence of bladder neck obstruction in young children, we have more and more often utilized the retropubic approach for its correction. This method was first popularized by Lich and Burns, and later modified by Young and Bonnin. A Y-V type of plastic operation is performed (*Fig. 1.*), widening the vesical outlet and shortening the posterior urethra. This should be accompanied by the removal of a generous wedge of the fibrous tissue at the posterior aspect of the bladder neck. We prefer to leave our patients on suprapubic drainage during their early postoperative course, and remove the cystotomy tube about the tenth postoperative day.

Many authors have described operative procedures directed at the ureterovesical junction designed for the correction of reflux. This may be done simultaneously with repair of the bladder neck, or as a separate procedure. As yet we have not utilized a procedure of this type, but it seems to be of definite merit in selected cases. One must keep in mind, however, that in many cases of mild degree, reflux will cease after correction of the outlet obstruction (*Fig. 2*). Attempts to correct reflux without prior or simultaneous relief of bladder neck obstruction are in general ill-conceived and fail to get at the primary problem.

In a few cases, advanced renal disease or other complicating conditions virtually contraindicate definitive treatment and one must resort to prolonged drainage. In girls this can be done satisfactorily with an urethral catheter, but suprapubic drainage is to be preferred in boys in most instances.

Results

As previously mentioned, only three patients have done well on conservative management. Four other patients have not had a definitive procedure carried out, but have been treated by drainage only. Two of these were in profound renal insufficiency when first seen and subsequently expired in uremia. A third

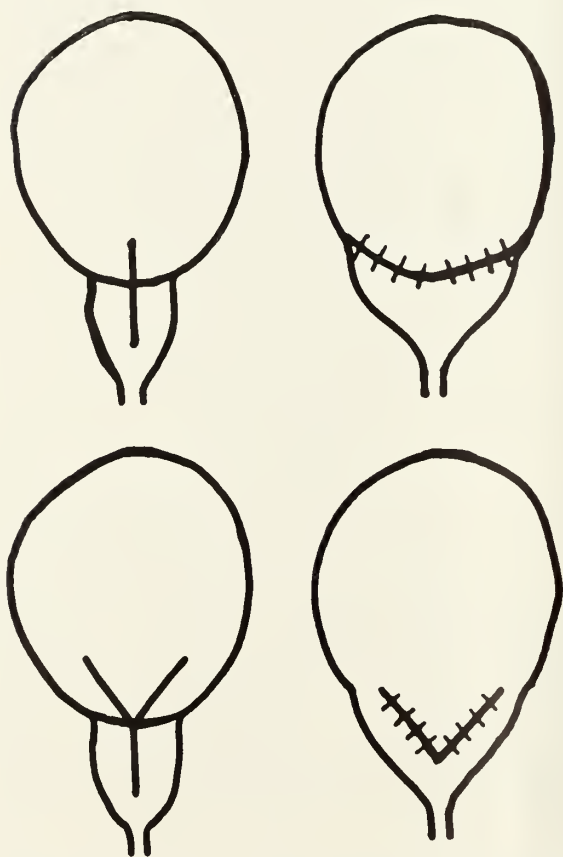


Figure 1. Diagram of two methods of vesical neck plasty. (Above) Vertical incision and transverse closure. (Below) Y incision and V closure.



Figure 2A. Preoperative excretory pyelogram.

child was found to have a markedly distended bladder and moderate renal insufficiency at birth. She also has a severe congenital heart lesion and was felt to be too poor a risk for surgery. The fourth patient, in addition to chronic renal insufficiency, has severe hypertension and chronic congestive heart failure. Her prognosis was felt to be so poor that a definitive repair was not warranted.

Ten patients had transurethral resection during the period covered by this report, including two patients who had previously had a retropubic procedure. Seven were boys and three were girls. Only two patients failed to improve. One of these, a girl, later underwent an open procedure and responded satisfactorily. The other patient had first been seen at the age of three months when an abdominal mass had been discovered on routine examination by his pediatrician. Severe upper tract damage was found when he was evaluated and he was placed on suprapubic drainage in 1954. His renal function eventually stabilized but massive right hydronephrosis with reflux persisted. The left kidney has never functioned. Transurethral resection was carried out in June 1960, but he failed to void satisfactorily and has been replaced on cystotomy drainage. Several other patients have had less than perfect results, but all have demonstrated subjective and objective improvement. Two boys still have rather poor control, and another has

had transient pyuria. In no case has there been development or progression of upper tract damage.

Twenty patients, eighteen of them girls, underwent retropubic vesical neck plasty. Seventeen have shown definite improvement and one other patient improved after she underwent transurethral resection of residual obstructing tissue. The two patients who failed to improve both had severe bladder and upper tract damage of long standing and had been on prolonged drainage. In retrospect, the operative procedures in all our failures were probably undertaken with more enthusiasm than good judgment. As in the transurethral group, not all the improved cases have had perfect outcomes. Several patients still have rather poor control, while a few others manifest intermittent pyuria and have required intermittent drug therapy. At least two patients still have demonstrable reflux and may eventually require additional surgery. However, no patient has experienced development or progression of upper tract disease.

Summary

Bladder neck obstruction in children is fairly common, but a high index of suspicion and complete urologic evaluation are necessary to establish the diagnosis.

Although no one symptom was seen in all patients, alterations in the voiding pattern and recurrent infection were seen most commonly.



Figure 2B. Preoperative cystogram demonstrating reflux.



Figure 2C. Postoperative excretory pyelogram.



Figure 2D. Postoperative cystogram.

Retrograde cystography was our most informative single diagnostic study.

Persistent residual urine and vesicoureteral reflux are distinctly abnormal findings and strongly suggest obstructive uropathy.

In general, we prefer open vesical neck plasty for repair of bladder neck obstruction in girls, but still utilize transurethral resection as the method of choice in older boys. We are not enthusiastic about conservative management.

Our failures were all in patients with far advanced disease. Definitive treatment should be carried out before extensive upper tract damage has occurred if at all possible.

References

1. Bodian, M.: Some observations on the pathology of congenital idiopathic bladder neck obstruction (Marion's disease). *Brit. J. Urol.* 29:393, Dec. 1957.
2. Bonnin, N.: Quoted by Nesbit and Crenshaw, *vide infra*.
3. Burns, E., and Harvard, B. M.: Common congenital lesions of the urinary tract. *J.A.M.A.* 146:419, June 2, 1951.
4. Emmett, J. L., and Simon, H. B.: Transurethral resection in infants and children for congenital obstruction of vesical neck and myelodysplasia. *J. Urol.* 76:595, Nov. 1956.
5. Hutch, J. A., Bunge, R. G., and Flocks, R. H.: Vesicoureteral reflux in children. *J. Urol.* 74:607, Nov. 1955.
6. Jones, B. W., and Headstream, J. W.: Vesicoureteral reflux in children. *J. Urol.* 80:114, Aug. 1958.
7. Leuzinger, D. E., Lattimer, J. K., and McCoy, C. B.: Reflux is dangerous but not always disastrous: Conservative treatment often effective. *J. Urol.* 82:294, Sept. 1959.
8. Lich, R., Jr., Maurer, J. E., and Burdon, S.: Extravesical method for relief of vesical occlusion. *Arch. Surg.* 59:460, Sept. 1949.
9. McGovern, J. H., Marshall, V. F., and Paquin, A. J., Jr.: Vesicoureteral regurgitation in children. *J. Urol.* 83:122, Feb. 1960.
10. Nesbit, R. M., and Crenshaw, W. B.: Treatment of bladder neck contracture by plastic operation. *J. Urol.* 73:516, March 1955.
11. Paquin, A. J., Jr., Marshall, V. F., and McGovern, J. H.: The megacystis syndrome. *J. Urol.* 83:634, May 1960.
12. Politano, V. A.: Vesicoureteral reflux in children. *J.A.M.A.* 172:1252, Mar. 19, 1960.
13. Sinatra, T. J.: Use of Y plasty for obstruction of vesical neck. *J. Urol.* 77:614, April 1957.
14. Stewart, C. M.: Delayed cystograms. *J. Urol.* 70:588, Oct. 1953.
15. Swenson, O., Fisher, J. H., and Cendron, J.: Megaloureter: investigation as to the cause and report on the results of newer forms of treatment. *Surgery* 40:223, July 1956.
16. Young, B. W.: Retropubic approach to vesical neck obstruction in children. *Surg., Gynec., and Obst.* 96:150, Feb. 1953.

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Clinical Nutrition

The Physician's Concern

Edited by **ELIZABETH McCUNE, Associate Director***

"CLINICAL NUTRITION is a speciality of medicine. It should be practiced by physicians and other allied personnel rather than by high pressure salesmen."¹ The general practitioner has as much responsibility in acquiring and making active use of his knowledge of nutrition as he does that of obstetrics, heart disease or atherosclerosis.

The physician of 1961 must deal with a public that is overly nutrition conscious. For the most part, this public has been exposed to a large amount of nutrition information, much of it reliable but some of it misleading or absolutely false. Probably because of this confusing situation and the tendency to take the glamorous or easy "way out," this public seems to lack the ability or initiative to make sound application of their nutrition knowledge.

Since Biblical days of Adam and Eve, food has been associated with magical and superstitious properties. Each generation has had its own variety, discarding some old ones and introducing new variations. All of these beliefs tend to encourage poor eating habits.

The most insidious misleading or false information in the food field today is that which follows in the wake of sales promotion based in small part on the science of nutrition. The U. S. Department of Health, Education, and Welfare has set out four myths² which are most often used as the basis of false ideas. These false ideas are elaborated on for use by sales agents to peddle food wares by radio, television and the press. The myths are: (1) All diseases are due to faulty diet. Diseases caused by dietary deficiencies are rarely found in the United States. In fact Americans have to go out of their way to avoid being well nourished if they are willing to eat a varied diet. (2) The allegation that soil depletion causes malnutrition. This myth is used to preach that the only salvation from the supposed evils is so-called organic farming and eating so-called "natural" foods and supplementing the diet with various special products. The only condition which might possibly be an exception to this myth is the lack of iodine in food produced in certain geographical areas, and this has been remedied by the iodizing of table salt. (3) The myth of overprocessing. The fact is over-

looked that modern food processing methods have been devised to preserve nutritional value or to restore it to foods. Good examples are the nutritional improvement of flour, bread, milk and oleomargarine with added vitamins and minerals. (4) The myth of subclinical deficiencies implies that anyone who has "that tired feeling" or an ache or pain in almost any part of the body, is probably suffering from a "sub-clinical deficiency" and needs to supplement his diet with some concoction. Since everyone has some of the symptoms mentioned, and they may have many causes, only a competent physician can determine their proper treatment.

The "rackets" promoted by these quacks who deal in "miracle," "wonder" and "super" foods or diet regimens cheat the American people alone out of more than five hundred million dollars in a single year. In addition, they cause inestimable suffering and loss of productivity by delaying the seeking of competent medical advice while waiting for the salesmen's "wonder cure" to do its job.

In addition to the food misinformation purposely disseminated by the unethical salesmen, reliable information dispensed by members of the medical team may become hazardous when improperly interpreted by the lay person.

For example, the recent focus of attention on the relationship of cholesterol and atherosclerosis nearly reached fad, or at least fashionable, proportions. While experimental evidence certainly pointed to the desirability of a scientific investigation of the relationship of cholesterol and fat ingestion to arterial damage, the abstinence from these foods by the general, unsupervised public could have dangerous repercussions.

Perhaps it is in keeping with the old adage, "Misery Loves Company," that many patients feel dedicated to converting friends and relatives to a diet regimen designed by their physician to accomplish a specific treatment. In this vein, special diet foods such as formula reducing products, "low calorie" soft drinks, artificial salts and sweeteners, and other similar products may have a place in an individual patient's treatment. When these same items are indulged by the general public, however, they seldom accomplish any goal, and their use may produce lifetime handicaps. A common misconception en-

* Staff of the Department of Dietetics and Nutrition, University of Kansas Medical Center.

countered by dietitians is the belief that if a little is good, a lot is better. So, the patient rationalizes, if one quart of reducing formula is good, a few extra glasses would be better. Thus, the patient has defeated his purpose in addition to being uncomfortable from an unsatisfying food intake.

Since food misinformation and food fashions have been with us since the beginning of civilization, there is little hope that they will disappear today or tomorrow. What then is the role of the medical team in the practice of clinical nutrition?

First, all members of the team must be familiar with the basic principles of nutrition. It is natural to ignore and avoid situations in which we are uncomfortable. To be comfortable discussing the practical application of nutritional science with a patient, the physician must know of what he speaks. These fundamentals should become a part of the physician's working knowledge during his medical school training. This training should enable the physician to comfortably discuss the following areas with his patients:

1. *The health advantages of good nutrition.*

2. *The composition of a good diet.* This has been simplified in the last few years by the recommendation of the use of a daily food guide.³ The guide emphasizes use of moderate amounts of four groups of foods: (a) meat, poultry, fish, and eggs; (b) fruits and vegetables, including potatoes, citrus fruits, and dark green or deep yellow vegetables; (c) milk and milk products; (d) bread and cereals. No special emphasis is given to any of these groups but a wide variety of selection within the groups assures an adequate nutritional intake. Using this guide, the physician is also able to evaluate a patient's nutritional history and advise him if changes should be recommended.

3. *Modifications of the normal diet for treatment of specific conditions.* Although many outlines for modified diets are available for use by the physician, many of the details of diet usage must come from him. A patient given an outline without interpretation errs in following principles of good nutrition and practical application of the diet. To aid the patient the physician must have a working knowledge of foodstuffs. For example, when telling a patient to eat a low salt diet, does the physician remember to caution that bacon is highly salted or that baking soda has the same effect on the patient as does salt from the shaker? In evaluating obesity, is the physician always aware that the condition is a result of over-intake of food? Even in the case of obesity associated with metabolic malfunction, the food intake has been greater than needed by that particular person. When telling a patient to "give up" fats or bread or potatoes, does the physician mean for the patient to interpret this instruction literally or does

he mean to limit the quantity? Considering body physiology and chemistry, should carbohydrate or protein foods be prescribed as "snacks" for the patient with symptoms of hypoglycemia? Although orange juice is a good source of potassium, should it be suggested in unlimited quantities for the patient who has a low potassium level but is also expected to reduce his weight? Can calcium "pills" be glibly prescribed for the expectant mother who prefers not to drink milk without serious consideration of her protein intake? These are but a few examples of the everyday need for and use of knowledge of foodstuffs.

4. *Evaluation of false or misleading claims by quack salesmen.* The sound basic principles of nutritional science would readily disclaim the advertisement stating that bread is "high in protein" or the popular misconception that "water is fattening." Likewise, they would allow the physician to recognize quickly that oils and margarines have the same calorie content as butter, bacon or any other fat and therefore would need to be limited in quantity if a calorie restriction were needed. Careful reading of the label on a highly advertised "low calorie" soft drink would readily tell the reader whether it is really "calorie free" and can be used in unlimited quantities by the patient who is supposedly following a 1,000 calorie diet.

The indisputable phrase, "My doctor said," carries an impact that cannot be overestimated in the field of food information. The physician carries a life-giving and financial responsibility to his patient to learn basic nutrition principles and to apply them in the practice of clinical nutrition every day.

References

1. Robert E. Olson, M.D.: Food Fadism—Why? *Nutrition Reviews*, Vol. 16, No. 4, April, 1958.
2. U. S. Department of Health, Education, and Welfare, Food and Drug Administration, Washington 25, D. C., Food Facts Vs. Food Fallacies.
3. Yearbook of Agriculture: Food, U. S. Department of Agriculture, Washington, D. C., 1959, 0.266.

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Under the act of Congress recently signed by the President, all Series E Savings Bonds may now be held an additional 10 years beyond their next maturity date at increased rates of interest. It pays to hold them.



Tumor CONFERENCE

An Unusual Bronchiolar Adenocarcinoma of the Lung

Edited by JOHN D. WARKENTIN, M.D.

Dr. Fink (Moderator): The case for presentation today is that of a highly unusual lung tumor, consideration of which raises the question of an etiologic factor not often thought of for lung tumors. Dr. Reiger, would you give us the history?

Dr. Reiger: The patient is a 64 year old white woman who entered the Kansas University Medical Center for the first time on March 8, 1961 with complaints of cough, fever and weight loss.

She had been in a state of good health, but in September 1960 a routine chest x-ray taken by the mobile unit was reported as showing an opacity in the right lower lung field. She was advised to consult her local physician but apparently chose to disregard this advice. However, in December 1960, she developed a pneumonitis with a productive cough, fever and right anterior chest pain. She had also lost about fifteen pounds of weight over a period of four months and complained of easy fatigability although her appetite had been fair. She consulted her physician, and chest x-rays taken at this time were interpreted as showing right pleural effusion with a fluid level and areas of pneumonic consolidation and atelectasis in the right lower lobe. Treatment with antibiotics resulted in disappearance of the cough and fever and some improvement of the x-ray findings. However, a month later a repeat chest x-ray disclosed persistence of an area of density in the right lower lobe and for this reason she was referred here for further investigation.

Her past illnesses have been limited to a sub-total hysterectomy twenty years ago for a tumor of unknown type and a cancer of the skin below the right eye fifteen years ago, treated with irradiation.

Physical examination on admission showed very few abnormal findings. Pulse was 88/min. and regular, the blood pressure 125/70 and the respirations 22/min. and regular. Her temperature was 97.6° F. Her head and neck were normal apart from an area of telangiectasis below the right eye. A lymph node

1 cm. in size was palpable in the left supraclavicular fossa. No other lymph nodes could be palpated. Examination of the lungs, heart, abdomen, extremities and nervous system disclosed no significant abnormalities.

The patient was asymptomatic on admission. The problem was that of an unexplained density in the lung, and a thorough investigation was undertaken.

Dr. Mantz: Was it definitely established that this patient had no history of respiratory disease prior to December 1960?

Dr. Reiger: She had had no respiratory disease apart from occasional episodes of flu.

Dr. Fink: May we see the x-rays before hearing the results of the other studies?

Dr. Tice: Chest x-rays taken on the day of admission show a triangular, apparently segmental zone of infiltration in the base of the right lung (*Figure 1, top*). Otherwise the lung fields are clear. The heart is normal in size but slightly deviated to the right. The hilar shadows are not unusually large. The diaphragms are smooth. There is no evidence of pleural effusion in the films taken here.

Dr. Mantz: Can it be determined by x-ray what segment of the lower lobe is involved?

Dr. Tice: From the PA view, one might think that the disease involves the right middle lobe and thus represents a middle lobe syndrome. However, the lateral view, which is the most important in localizing the lesion, shows that it is posterior (*Figure 1, bottom*). I believe the lesion is involving the posterior and lateral basilar segments of the right lower lobe.

Planograms show extensive calcification in the lower pole of the right hilum with fibrosis radiating from this region into the posterior base of the lower lobe suggesting an old granulomatous process with scarring. Bronchograms show extensive chronic bronchitis throughout both lungs, as well as scarring, deformity and cylindrical bronchiectasis involving all

of the segments of the right lower lobe and the middle lobe. No evidence of tumor is identified by the bronchograms. In the differential diagnosis of the infiltrated zone one must consider a primary bronchial tumor with atelectasis or an inflammatory process. Other studies, including a gallbladder visualization, intravenous pyelogram, barium enema and barium meal, do not demonstrate any significant abnormalities.

Dr. Fink: What did the rest of the investigation disclose?

Dr. Reiger: The routine admission urinalysis was within normal limits. The hemoglobin was 12.9 gm.

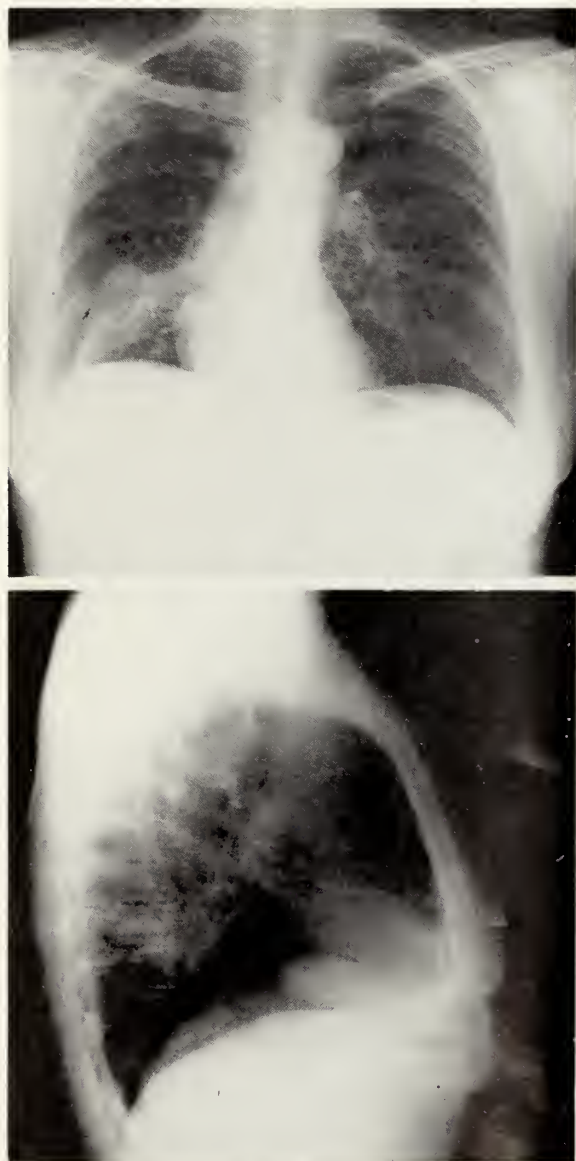


Figure 1 Top: Postero-anterior film of chest, showing the segmental zone of infiltration in the base of the right lung. *Bottom:* Right lateral view shows the posterior location of the lesion.

per cent, the white blood count 4,970 with a normal differential, and the eosinophil count 133/cu. mm. The V.D.R.L. was nonreactive. The blood urea nitrogen, blood glucose, serum electrolytes and serum proteins were all within normal limits. The erythrocyte sedimentation rate was 30 mm. in one hour. Smears and cultures of the sputum were negative for acid fast bacilli and fungi. The tuberculin and histoplasmin skin tests were both negative. An electrocardiogram was interpreted as compatible with an old myocardial infarction or myocardial ischemia. Several samples of sputum were reported by the cytologist to contain abnormal cells compatible with an adenocarcinoma or bronchial adenoma. On March 10 a bronchoscopy was performed, but no abnormalities were found in any of the bronchi. Bronchial washings again were interpreted by the cytologist as showing abnormal cells compatible with tumor. The right scalene fat pad which was resected contained five lymph nodes which were histologically normal. On the basis of these findings, we felt that the patient had an unexplained mass in the base of the right lobe which was probably carcinoma and should be removed.

Dr. Fink: We have heard the middle lobe syndrome mentioned. Dr. Reiger, would you explain what is meant by that term?

Dr. Reiger: The middle lobe syndrome consists of atelectasis of the lobe due to obstruction of its bronchus by enlarged lymph nodes. The lymphadenopathy may be due to tumor or inflammation. A similar process may involve any other bronchus, resulting in collapse of the corresponding lobe, but it does occur much more frequently with the right middle lobe bronchus.

Dr. Mantz: The middle lobe syndrome has been a subject for discussion for many years. Among the first persons to describe it were Evarts Graham, of Washington University, and John Maier, a prominent thoracic surgeon in this city. They, and others who have subsequently studied this syndrome, have pointed out the fact that the right middle lobe bronchus is undefended or unprotected by surrounding parenchyma for a much longer distance than any other lobar or segmental bronchus. The lymphatics from the left lower lobe and the right lower, middle and upper lobes converge on the undersurface of the middle lobe bronchus in a cluster of lymph nodes. These, therefore, are probably the most frequently involved by any neoplastic or inflammatory process. The middle lobe bronchus hangs over this group of nodes and may very well become compressed by their enlargement. A similar process may, of course, also involve nodes adjacent to other bronchi, the second most frequently affected being those around the inferior lingular segment of the left lower lobe.

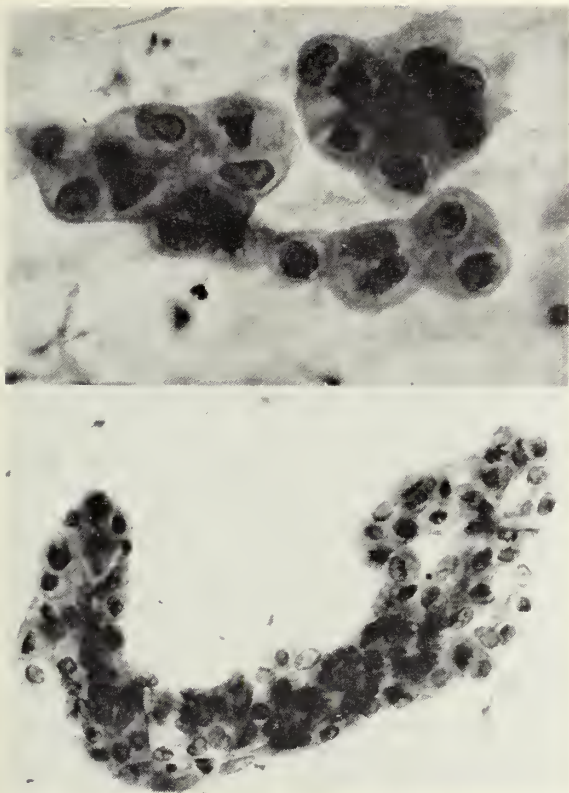


Figure 2 Top: Clusters of atypical cells in the smear of sputum show marked nuclear abnormalities and cytoplasmic vacuolization. $\times 600$. Bottom: The malignant cells often have a papillary pattern. $\times 325$.

Dr. Fink: What were your operative findings, Dr. Reiger?

Dr. Reiger: At operation the right lung lay free within the pleural cavity, except for a small pleural adhesion in the area of the lesion. There were no adhesions of the greater and lesser fissures. The mass in the posterior basilar portion of the lower lobe measured about 4 to 5 cm. in diameter and did not apparently involve the pleura. It lay a good 4 to 5 cm. below the fissure, and for this reason we thought that a lobectomy would give as good a chance of cure as a pneumonectomy, even if the mass were a carcinoma. A right lower lobectomy was therefore performed. The patient has done well since the operation.

Dr. Mantz: Could you localize the involved segment at the time of operation?

Dr. Reiger: The mass was posterior and, I believe, involved the posterior basilar segment and may have extended into the superior segment. Since I did not do a segmental resection, I cannot say whether or not it also involved other adjacent segments.

Dr. Fink: Will you tell us about the pathologic findings, Dr. Mantz?

Dr. Mantz: Firstly, I would like to discuss the

cells in the smears of sputum that gave us so much concern. These cells most closely resemble those desquamated in cases of so-called alveolar cell or terminal bronchiolar carcinoma. They do not show remarkable variation in size, but nuclear abnormalities are outstanding and vacuolization in their cytoplasm is seen (Figure 2, top). Note also that the cells are arranged in a distinctly papillary pattern resembling the fronds of a bronchial papilloma (Figure 2, bottom). I think the conservative approach would be to say that they are consistent with adenocarcinoma. We consider this a positive smear.

The gross specimen consists of the lower lobe of the right lung. Dissection of the bronchi shows some thickening of their walls but none is the site of distinct tumefaction, nor is there any area of ulceration or infiltration of the bronchi which could be considered a primary site of a bronchogenic carcinoma. The parenchyma shows a well-defined, firm, slightly granular, light tan to yellow area of consolidation which is well confined to the posterior basal segment (Figure 3). I consider this definite localization highly significant in this case. The remainder of the parenchyma discloses only focal areas of atelectasis.

There are a number of histologic features in the involved segment that disturb us considerably. There

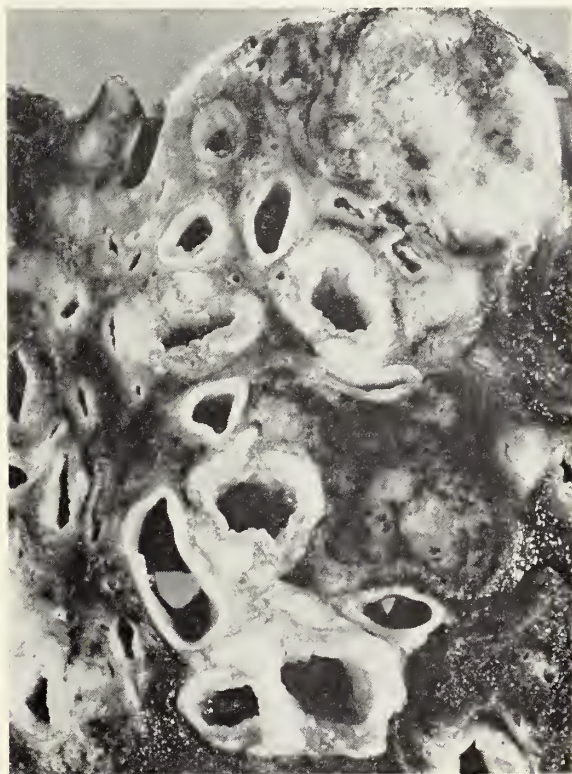


Figure 3: Gross photograph of the involved posterior basal segment showing thickening and dilatation of the large bronchi and consolidation of the intervening parenchyma.

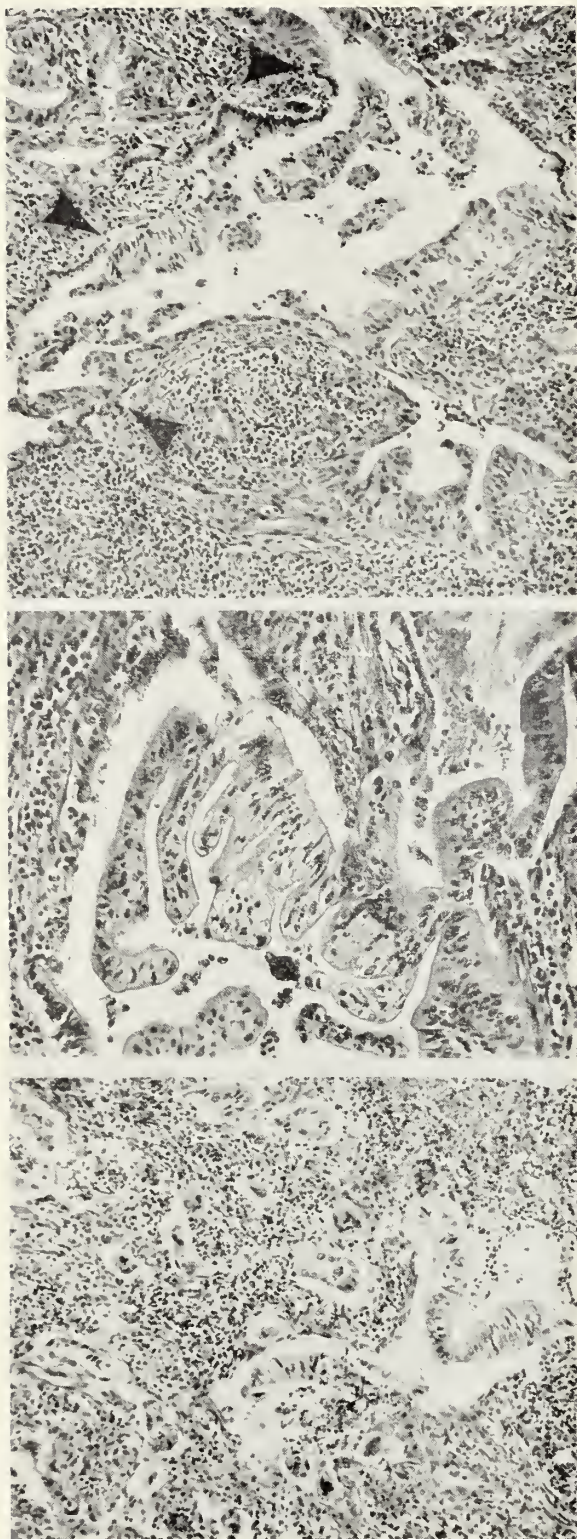


Figure 4: Photomicrographs of the involved segment of lung. Hematoxylin and Eosin. *Top*: Atypical, papillary proliferation of the bronchiolar epithelium. Note the sharp demarcation from normal, ciliated respiratory epithelium (arrows). The surrounding parenchyma is

has been almost complete consolidation of the segment by atelectasis, extensive fibrosis and chronic inflammatory cell infiltration which is characteristic of chronic organizing pneumonitis. A striking finding, constant in almost all of the bronchioles in this segment, is a marked degree of hyperplasia of their lining epithelial cells. In some bronchioles this hyperplasia assumes a disturbing papillarity (*Figure 4, top*). This change was not noted in any of the other segments.

There are many causes of chronic organizing pneumonitis, but the disease which most frequently predisposes to nonresolution is viral infection. I would remind you that in cases of chronic organizing pneumonitis, particularly in those due to a viral infection, there is frequently a marked degree of atypical hyperplasia of bronchiolar epithelium which may be very disturbing to the pathologist, especially when he is asked to give a diagnosis on the basis of a frozen section. This has given rise to the false frozen section diagnosis of carcinoma on a number of occasions.

A remarkable feature in this case, however, is the sharp line of demarcation between normal bronchiolar epithelium and highly atypical epithelium (*Figure 4, top*). Such sharp demarcation is a hallmark of so-called carcinoma-in-situ. The proliferated atypical bronchiolar epithelial cells show moderate variation in their size and staining and a striking resemblance to the abnormal cells in the smears of sputum (*Figure 4, middle*). In places the papillary feature becomes so marked that one thinks seriously of an intrabronchiolar papilloma. In some bronchioles the epithelial atypicality is even more marked and there is evidence of extension into the surrounding tissue by isolated groups of malignant epithelial cells. Still elsewhere the tumor is frankly invasive (*Figure 4, bottom*). In these areas mitotic activity is more pronounced. Twenty lymph nodes dissected from the hilus showed no evidence of metastatic tumor.

I would like to emphasize again the striking similarity that a neoplasm of this variety may have to an atypical bronchiolar hyperplasia which has an inflammatory basis. I have always been suspicious of atypical bronchiolar hyperplasia, although many authorities maintain that it is entirely benign. Recently, however, Spain¹ and Beaver and Shapiro² have demonstrated tumors of the terminal bronchiolar variety which suggest origin in an atypical bronchiolar hyperplasia associated with chronic pneumonitis and fibrosis. On the basis of its morphologic appearance, I believe

(Continued on page 282)

collapsed, inflamed and fibrosed. $\times 100$. *Middle*: Higher power shows similarity of the proliferated bronchiolar epithelium to the cells in the sputum. $\times 140$. *Bottom*: Invasion of bronchiolar epithelial cells into surrounding tissue. $\times 100$.

Hope Chest . . . or Grope Chest?

When you flip open your medicine cabinet tomorrow morning—stop, just for a moment, and take a good, hard look at what confronts you.

Is your medicine cabinet a "hope chest" . . . or a "grope chest"?

According to surveys conducted by leading universities, pharmaceutical firms, newspapers and magazines, the average family medicine chest falls into the second category—a chaotic clutter of useless items and outdated medicinals, with an appalling lack of basic first aid items no home should be without.

It is true that more families today are learning first aid fundamentals to cope with the fourteen assorted injuries and accidents statistics show occur in the average home each year. But what good is the know-how without the tools?

More than 30 per cent of the nation's medicine chests lack adhesive bandages! Eighty-six per cent don't have sterile gauze pads; several other first aid basics—including such a staple as adhesive tape—are missing in varying percentages.

That's alarming news. With families increasing in size, more and more children are coming up with inevitable cuts, scrapes, burns and the like, for parents to treat. The medicine chest is the family's first aid storehouse.

Well, what *should* your medicine chest contain, and how much should first aid basics cost? According to leading medical authorities and safety organizations, you're doing your family a poor service if you don't keep these "musts" on hand at all times:

1. *Roll bandage.* Two-inch or three-inch widths of improved conforming bandage are recommended for most home injuries that require bandaging.

2. *First aid cream antiseptic.* For proper treatment of cuts, scrapes, burns.

3. *Adhesive tape.* For securing bandages and gauze pad dressings. Cloth tape is available in handy Tri-Wide rolls, with strips of $\frac{1}{4}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " on same roll. To make larger dressings less conspicuous, Band-Aid clear plastic tape is recommended.

4. *Sterile gauze pads.* Necessary as dressings for larger injuries, 2" x 2" or 3" x 3" pads are recommended for most home emergencies.

5. *Sterile absorbent cotton.* Important for properly cleansing injuries.

6. *Sterile cotton swabs.* Handy for reaching delicate nose and ear areas, particularly for babies.

7. *Universal antidote.* For poisoning emergencies; your druggist will make it up for you.

8. *Adhesive bandages.* For tiny nicks and cuts that don't require gauze bandages, a variety of conven-

ient Band-Aid Bandages (Sheer and Plastic strips, Patches, Spots) are available.

9. *Spirits of ammonia ampules.* For reviving victims of fainting or unconsciousness.

10. *S-Shaped (RESUSITUBE) airway.* For emergency artificial respiration or treatment of asphyxia or choking, until medical aid arrives. The airway makes resuscitation easier to accomplish and more effective. Parents should thoroughly familiarize themselves with proper use of the airway, by attending demonstrations of local safety organizations or by viewing community and local TV showings of the film "50,000 Lives" which depicts both mouth-to-mouth and mouth-to-airway resuscitation.

Not listed as a "must" but helpful to have, is a small first aid chart or guide which can be taped to back of medicine cabinet door for handy reference. A free guide to ABC's of treating and bandaging minor injuries, "How to Bandage for Faster Healing," is available by writing to Johnson & Johnson, New Brunswick, New Jersey.

How much do first aid basics cost? Average sizes of the ten listed above should cost less than five dollars—for a full year's first aid protection for the average family. That's a mighty small premium for family first aid "insurance."

Naturally some non-first aid items belong in your medicine chest, too. You'll want to include mouthwash, dental floss, headache remedy, laxative, cold tablets, indigestion remedy, nose and throat medications, possibly other things, depending on space.

And space is something you'll have more of if you unclutter your shelves, remove old and outdated medicinals that shouldn't be there, and arrange items neatly. All medicines deteriorate with age—even prescription items—so don't keep them longer than a year. Replace them. When you use a bottle of medicine, make sure you re-cap cover tightly so prying young hands can't open it.

Above all, use the space in your medicine cabinet judiciously. Keep potentially dangerous items off lower shelves. Label all medicinals. Don't bury antiseptic, tape, bandages—the first aid items you'll use most. Make sure universal antidote and RESUSITUBE are where you can reach them in a hurry for immediate emergency use.

Make your medicine cabinet the family "hope chest" . . . not "grope chest."

The Lord gave us two ears and only one mouth. Evidently He intended us to do twice as much listening as talking.

Radiology

Gallstone Obstruction of the Colon

ENZO F. LUZZATI, M.D., and JOHN R. KLINE, M.D., *Wichita*

BECAUSE OF ITS unusual nature, the following case of obstruction of the sigmoid colon is being reported.

The patient, a poorly nourished 74-year-old white female, was admitted to the hospital with a history of obstipation for 1 week. The obstipation was accompanied by nausea and vomiting of small amounts of yellowish, watery material. The patient did not complain of crampy abdominal pain.

The past history revealed a history of nausea, vomiting, vague abdominal pain and abdominal tenderness intermittently for the 3 years previous to the present admission. A plain film of the abdomen taken 3 years previously revealed a huge lamellated gallstone in the right upper quadrant of the abdomen, presumably in the gall bladder.

A physical examination at the time of admission revealed a distended abdomen. No rigidity or muscle guarding was present. The abdomen was quite tympanic. Peristalsis was quite audible. The patient had a far-advanced markedly deforming rheumatoid arthritis which had confined her to bed for several years.



Figure 1. Markedly distended colon with gallstone, easily visible in the sigmoid area.



Figure 2. Spot film of gallstone in the sigmoid colon.

The hands and forearms were locked in position across the chest.

A plain film of the abdomen taken on the day of admission showed a large amount of gas in the colon. The cecum was quite distended. There was some gas in the small bowel. There was a rather oval density in the mid portion of the pelvis which was somewhat difficult to visualize because of overlying gas but was thought to be a large oval gallstone. One poorly visualized streak of air could be seen overlying the medial portion of the right lobe of the liver. It was thought that this represented air in a biliary radical. Because of these findings, a complete obstruction of the sigmoid colon by a large gallstone was suggested.

Two days after admission, a barium enema was done. The examination showed a complete obstruction in the mid sigmoid colon and at the site of obstruction, a large lamellated gallstone was easily visible. Two days later, a cecostomy was done. The patient improved markedly following the cecostomy. A week after the surgical procedure, another barium enema was performed and at that time, barium did pass through the sigmoid area although the gallstone was still present and was still visible. A fistulous tract between the right transverse colon and the gall bladder was outlined with barium and barium filled the biliary radicals in the liver.

The cecostomy relieved the patient's obstruction and because of age, advanced arthritis, and generally debilitated state, no further surgery was contemplated.

The cecostomy was eventually closed and the patient discharged without further obstructive difficulties. Now, one year later, the patient is still free from abdominal distress.

Discussion

If the incidence of small bowel obstruction from gallstones is rather low, the incidence of colonic obstruction from gallstones is certainly much lower. Actually, the latter case can be classified, without too much doubt, among the "unusual" that one encounters in the daily clinical practice of radiology. Foss and Summers in a review of 125 cases of gallstone ileus, found only five cases (3.3 per cent) with obstruction of the colon or rectum. Usually, the gallstone passes directly into the colon through a spontaneous cholecystocolic fistula³ and subsequently causes obstruction of the sigmoid which is the narrowest area. Obviously, it would be a rather unusual instance if a gallstone passing through the ileocecal valve would ultimately become impacted in the colon, unless the latter were involved by some pathologic process producing narrowing and stenosis. Lomhoff and Dubowy reported a case of large bowel obstruction due to a gallstone measuring 2.5 by 3.5 cm. in the sigmoid, associated with diverticulitis of the sigmoid. However, in their case, the actual site of the fistula between the gall bladder and intestinal tract could not be demonstrated. Fistulous tract formations between the gall bladder and the colon have been reported in varying incidence by different authors. Curvoisier found 39 cases of cholecystocolic fistulae among 490 cases of internal and external biliary fistulae in a survey of the world literature up to 1890;² Judd and Burden, 25 in a series of 153 internal biliary fistulae; and Bernhard, 36 among 109 cases of internal biliary fistulae; Scott, Pygott, and Murphy, in a review of the literature up to 1951, 20 cases



Figure 4. Barium enema showing fistula between hepatic flexure of colon and biliary ductal system.

among 181; Waggoner and Lemone, in 1949 in a review of 819 cases reported in the literature, found 21 per cent of cases with cholecystocolic fistulae while in 51 per cent the fistulae were cholecystoduodenal and in 19 per cent, choledochoduodenal.

Regardless of whether the fistulous formation exists between the small or large bowel, an important radiologic diagnostic finding is air in the biliary tract. Rigler, Bowman, and Noble, in their significant series of cases diagnosed by radiographic studies preoperatively based their diagnosis on the following signs:

1. Air or contrast medium in the biliary system.
2. Direct visualization of the stone.
3. Evidence of intestinal obstruction.

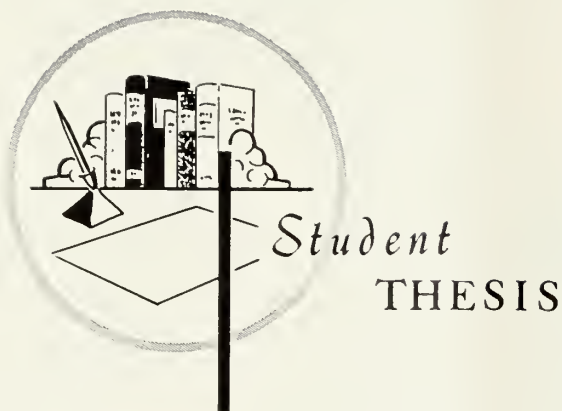
The appearance of air in the biliary tract, when present or otherwise not obscured by enteric distention is quite typical and unmistakable. In the great

(Continued on page 274)



Figure 3. Spot film of gallstone in sigmoid colon after obstruction was relieved by cecostomy.

Several recent issues of *The JOURNAL* have included a case report in the field of radiology. The Editorial Board feels that these case reports are interesting and instructive, and invites contributions from radiologists anywhere in the state. Though it may not appear each month, it will appear whenever suitable material is available.—*Ed.*



Dystonia Musculorum Deformans

WILLIAM C. SIMMONS, M.D., *Kansas City*

THE EXTRA-PYRAMIDAL system is a complex group of centers, nuclei, and tracts widely scattered throughout all levels of the central nervous system. Its connections are diffuse and are composed of short neurons with many relays. In man, the functions of this system are concerned mainly with postural reflexes associated with and providing a background for voluntary motor activity.⁷

Lesions of the central nervous system which involve extra-pyramidal structures produce one or more of three principal motor abnormalities. These are loss of associated movements, disturbances of tone, and involuntary movements.⁷ The clinically defined patterns of involuntary movement are tremors, hemiballism, chorea, athetosis, and dystonia.

Historical Background

Careful study of involuntary-movement patterns has resulted in the differentiation of a number of neurological disease entities. Credit for first directing attention to involuntary movement disorders is given to Paracelsus, a German Renaissance physician. In his monograph, *Diseases That Deprive Man of His Reason*, written in the late 16th century, he attempted an etiological classification of disorders characterized by hypermotility.¹² Prior to that time all such dis-

orders whether neurotic, psychotic, or the result of organic brain lesions were attributed to St. Vitus' Dance.⁹ This was a form of mass hysteria which spread in several epidemics throughout Europe during the fourteenth, fifteenth, and sixteenth centuries. It was characterized by wild uncontrolled dancing. The dance mania or hysteria was named after the chapels of St. Vitus where priests with religious observances were able to "heal" many of the "afflicted" individuals. Paracelsus differentiated this from symptoms produced by organic disease, and suggested the somewhat traumatic treatment of throwing those afflicted with St. Vitus' Dance into cold water.¹² He used the Greek word for dance, chorea, for abnormal movements and differentiated several types. These were: "chorea imaginative" (St. Vitus' Dance), "chorea lasciva," caused by sexual desire, and chorea due to "physical" causes.⁹

Following Paracelsus' work, abnormal movement disorders were examined more carefully. In 1685 Sydenham distinguished for the first time the choreiform movements occurring in a nervous disease of childhood, now thought to be a manifestation of rheumatic fever.¹⁴ In 1817 Parkinson described another entity, paralysis agitans, in which tremor is one of the dominant symptoms. It was not until the nineteenth century, however, that acute chorea, chronic chorea, and involuntary muscle activity were defined and differentiated. Prior to that time, even epileptic phenomena were not distinguished as specific symptoms of neurological disease. In 1872 Huntington described chronic chorea, the hereditary extra-

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. William C. Simmons is now serving internship at the Bethany Hospital, Kansas City, Kansas.

pyramidal disease characterized by onset in adulthood.

In 1871 Hammond first described athetosis as a distinct form of involuntary movement. Following this many cases of disorders with athetotic movement were reported. Among these were double athetosis, which became a clearly defined clinical entity after C. and O. Vogt described status marmoratus of the basal ganglia as the underlying pathologic lesion.⁹ Post hemiplegia athetosis was later differentiated as a form caused by localized lesions, such as hemorrhage or thrombosis.

From these known forms of involuntary movements, mainly double athetosis, another form was differentiated in the first decade of the twentieth century. Schwalbe reported a case characterized by tonic contractions with "hysterical" symptoms in 1908. Ziehen described comparable symptoms in a disease entity which he called "Torsioneurose" two years later. It was Oppenheim, however, who inaugurated the term "dystonia" in 1911 and recognized dystonia musculorum deformans as an organic disease of the nervous system.⁹ This disease entity is also known as Ziehen-Oppenheim disease, dystonia deformans progressiva, dysbasia lordotica progressiva, and tortipelvis.

Clinical Characteristics

Dystonia musculorum deformans is an extra-pyramidal disease of unknown etiology. It is characterized by gross involuntary movements, fixed postures, deformities, and eventual contractures.⁹ In the majority of cases it becomes manifested in what has appeared previously to be a neurologically intact child.⁵ There are a few cases reported, however, in which the disease was acquired in adulthood or was manifested in early infancy. The gross involuntary movements described by the term dystonia are similar to those of athetosis. They differ, however, in the more sustained nature of the contractions and the predominance of involvement of trunk musculature and proximal portions of the girdle.¹⁴ Comparable involuntary movements may occur in several disease entities, but there is no doubt that dystonia musculorum deformans exists as a distinct clinical entity.^{11, 14}

Incidence

The disease is rare. Herz was able to collect but 188 cases from the literature and of these, 75 were actually other disease entities with dystonia as a symptom.¹⁰ Males and females are affected with equal frequency.¹⁴ Although cases have been reported in all races, some authors have stated that there is a greater incidence in families of Russian-Jewish descent. Nine cases, familial in nature, have been reported. There is, however, no evidence that heredi-

tary factors play a significant role in the disease.^{11, 14}

The age of onset in the majority of cases reported by Herz was between five and fifteen years.¹⁰ In Cooper's series the average age of onset was seven to eight years.⁶ A few cases have been reported in which the disease either was present from infancy²¹ or developed as late as the third or fourth decade of life.¹⁴ The patients thus fall into three general groups¹⁰ in regard to age of onset of symptoms:

1. Early dystonia in which symptoms are present from birth.
2. Juvenile dystonia in which symptoms develop after a period of what appears to be normal development.
3. Late dystonia in which symptoms develop in adulthood.

Pathology

The pathology has not been clearly elucidated in this disease process.^{6, 7, 14} This difficulty may be attributed in part to the paucity of material available for study and the failure of some writers to differentiate between the disease entity dystonia musculorum deformans and diseases in which dystonic movements are symptoms.

The reports are quite variable in regard to localization of lesions. In one series of 15 patients, the pallidum, striatum, subthalamic nucleus, and red nucleus were involved to varying degrees in most cases, as well as patchy involvement of other brain stem structures.¹¹ Other cases have been reported in which lesions of the cerebral cortex were dominant.⁶ In general, it may be stated that the lesions are characterized by their diffuseness, rather than specific localization.^{5, 6, 7, 11} This is characteristic of all symptomatic extra-pyramidal lesions with the exception of hemiballism which may be caused by localized subthalamic lesions.⁷

The histopathological changes which have been reported are status marmoratus, status dysmyelinatus, and status fibrosus.^{11, 14} Status marmoratus is characterized by a marbled appearance due to the presence of large bundles of abnormally placed myelin sheaths which are found predominantly in the caudate and putamen nuclei.¹⁴ The change is present at birth and is postulated to be due to an aberrant tract from the cortex¹ or the result of birth anoxia or fetal encephalitis.¹⁴ Status dysmyelinatus, another congenital malformation, is characterized by shrinkage of the caudate nucleus, globus pallidus, and subthalamic nuclei and by a lack of myelin sheaths in these areas.¹⁴ Status fibrosus, or primary abiotrophy, is characterized by a generalized fibrosis and shrinkage of the basal ganglia.¹⁴ It is an acquired lesion of unknown etiology. Herz found that in early

dystonia, status marmoratus alone or combined with status dysmyelinatus and fibrosus is present.¹¹ In juvenile dystonia, status fibrosis or degenerative changes predominate; and in some cases, there are changes resembling those in status marmoratus. In late dystonia the histopathological changes are primary degeneration. Herz believes that status fibrosus is responsible for the majority of the cases.

Case Reports*

CASE 1. HISTORY

The patient, a white female, was 10 years of age at the time of her admission to Children's Mercy Hospital. Delivery had been spontaneous after a normal, full term pregnancy. She breathed spontaneously following delivery and no history of neonatal icterus was elicited. The family history was significant in that one sibling, an 8 year old male, had a neurological disease diagnosed as dystonia musculorum deformans. The child's parents were both of Irish descent with no history of other neurological disease.

The child's development, intellectual and motor, was essentially normal until she was 7 years old. At that age her parents first noted an intermittent "clumsiness" in her gait. For no apparent reason she would stumble and fall. Closer observation of the child revealed that her "clumsiness" was caused by an involuntary inward torsion of her left foot. The symptom gradually became constant over a period of several months and was accompanied by involuntary movements of the left knee and thigh. These were flexion and extension at the knee joint, and abduction and extension at the hip joint. Comparable symptoms were next noted in the right lower extremity and at the end of 1 year, the child was rendered non-ambulatory. The movements were characterized as being rather slow, and abnormal involuntary postures were assumed for variable periods of time. The involuntary movements and postures were noted to be absent during sleep.

During the second year of the disease the upper extremities became involved. The movements were slow and were manifested mainly in the proximal joints. The neck and spine gradually became involved with slow twisting movements and made it impossible for the child to sit in a chair. There was no apparent impairment of the child's intellect and she was continuing her school work with the aid of a tutor.

Physical examination revealed a thin white female exhibiting involuntary dystonic movement of all her extremities as well as torsion of the spine and neck.

She was opisthotonic for variable periods of time, and was unable to sit up without assistance and had great difficulty with the simplest voluntary movements of her upper extremities. Her feet were in equinus position, but no contractures had developed. There was rather marked atrophy of all extremity musculature, in particular of the lower extremities. The child grimaced intermittently and had some dysarthria. All involuntary movements were enhanced when the patient attempted voluntary motor activity or knew she was being observed. During sleep the involuntary movements and fixed postures were absent except for the equinus posture of her feet. There was resistance to passive movement of her extremities in particular preceding the onset of involuntary movements. The sensory examination was normal.

CASE 2. HISTORY

The patient, a white male, was 8 years of age at the time of admission to Children's Mercy Hospital. Delivery had been spontaneous at 7 months gestation. There was a questionable history of asphyxia, but this could not be verified. There was no icterus during the neonatal period.

The child's growth and development was essentially normal until he was 6½ years of age. At that time he began having difficulty walking because of an involuntary inward torsion and extension of his left foot. Several months later, there developed bilateral dystonic movements in the proximal lower extremity joints. The child could not walk, but could sit in a wheel chair without difficulty.

Examination was essentially negative except for the equinus posture of the left foot and the intermittent sustained torsion movements of the thighs.

Discussion of the Cases and the Clinical Courses of Dystonia

The cases demonstrate the usual initial manifestations in juvenile dystonia. To be noted is the excess of motion which gradually is replaced by excess of tension and what Herz calls "dystonic postures." Because of the bizarre nature of early symptoms, these patients are frequently initially regarded as "behavior problems."^{5, 14} Although involuntary movements are usually first manifested in the lower extremities, cases have been reported in which involuntary movements initially involved the upper extremities or the neck and trunk.^{5, 10, 14} The usual sequelae to "dystonic postures" are contractures which had not yet developed in these cases. In the majority of cases, the patient becomes bedfast within five years, after which death takes place in two to three years. Occasionally the disease will be stationary for many years or may be rapidly progressive.¹⁴ The diagnosis of dystonia is based upon the appearance of dystonic

* These patients were examined by this writer in May 1959 at Children's Mercy Hospital, Kansas City, Missouri.

movements and spasm of trunk and girdle musculature in a child or adult in the absence of a history or physical findings diagnostic of hepato-lenticular degeneration, epidemic encephalitis, or known birth injury.^{6, 7, 10, 14}

Treatment

Medical treatment for involuntary movement disorders is relatively effective in early stages. Among the drugs utilized are the belladonna alkaloids, atropine, scopolamine, and stramonium and the newer synthetic anti-parkinsonism drugs. These are of little value, however, in advanced cases of paralysis agitans and in patients with choreiform, athetoid, or dystonic movements.^{13, 14} Because of this a large number of surgical procedures have been devised.

Many surgical procedures have been done upon various levels of the pyramidal system. In 1909 Horsley resected the contralateral motor cortex of a patient with athetosis. Comparable procedures were done by Bucy and Case.² Walker²⁰ did procedures upon the cerebral peduncles, and Putnam¹⁷ and many others upon the pyramidal tract in the spinal cord. The degree of alleviation of hyperkinetic phenomena obtained by these means was proportionate to the extent that they produced motor weakness or paralysis.^{7, 13, 14} With loss of the latter, the symptoms again were manifested.

Other procedures have been directed toward various structures of the extra-pyramidal system. Putnam sectioned the antero-lateral column of the spinal cord and achieved some relief of hyperkinetic phenomena without marked loss of motor function.¹⁷ In essence, he was partially severing the more cephalic foci of pathology from the anterior horn cells by section of rubro-spinal, reticulo-spinal, olivo-spinal, and tecto-spinal tracts. The more recent surgical approaches have been upon the basal ganglia and their outflow. Meyers¹⁵ was the first to report relief of hyperkinetic phenomena following section of the ansa lenticularis (fibers emerging from ventral surface of the globus pallidus and putamen to the hypothalamus, reticular formation, and tegmental nuclei). In 1951, Meyers summarized various operative procedures (done without benefit of stereotaxic instruments), of 15 cases in which pallidofugal fibers only were sectioned, 10 were improved, 2 unimproved, 3 died post operatively.¹⁶ Stereotaxic placement of coagulative lesions in the globus pallidus, ansa lenticularis, and thalamus have been demonstrated to alleviate hyperkinetic manifestations by several investigators.^{22, 8} Other methods utilized have been surgical ligation of the anterior choroidal artery³ and chemopallidectomy, injection of absolute alcohol neuro-surgically into the globus pallidus.^{3, 4, 5, 6}

Of these surgical approaches, the chemopallidectomy appears, at this time, to be most applicable in treatment of dystonia musculorum deformans.⁵

By virtue of the nature of the symptoms, the patient must be unconscious during placement of the lesion and so cannot be checked upon during surgery. The same lesion will not always produce comparable results in patients manifesting the same symptoms, therefore an initially reversible physiological lesion is produced by insertion of a cannula into the globus pallidus or ventro-lateral nucleus of the thalamus and a balloon is inflated with radiopaque material. Following surgery, the lesion can be modified by further inflation, deflation, or removal according to the status of the patient. When the most effective lesion has been created in this more or less reversible manner, absolute alcohol is instilled into the site, effecting destruction of neuronal elements in the circumscribed region.

In a series of 16 patients so operated, Cooper noted great improvement of 13 patients.⁶ He has followed these patients up to 3 years with no return of symptoms. Dr. Fowler, utilizing a comparable surgical procedure, operated upon the patients whose case histories are presented in this paper. The bilateral chemopallidectomy resulted in marked improvement in both of these cases without impairment of intellect.

Summary and Discussion

That the pathology and indeed, the pathophysiology of the disease entity dystonia musculorum deformans is not clear at this time, has previously been discussed. The hyperkinetic phenomena dystonia is one of several which may be produced by lesions causing:^{7, 9}

1. Imbalance of reciprocal innervation between the cortex and extra-pyramidal centers.
2. Interruption at any site of the complex circuitous pathway between the cortex, basal ganglia, lower extra-pyramidal centers, cerebellum, thalamus, and cortex.
3. Disease of any of the structures entering into this circuit.
4. Rhythmic activity of the reticular formation, when it is released from control of higher centers by lesions below the basal ganglia which destroy part of the mesencephalic and pontine tegmentum.

Dystonia is distinguished from other abnormal movements by:^{5, 6, 7, 9, 14}

1. The characteristic axial and proximal joint musculature involvement.
2. The relationship of tonus and movement.

In dystonia, the muscle tonus is increased to the point of limiting motion in the involved joints.⁹ This

eventually leads to fixed postures and contractures. In athetosis, there is greater tonus associated with involuntary motor activity than with normal movements, but not to the extent of effecting fixed postures.⁹

That globus pallidus lesions placed surgically have been demonstrated to relieve the symptoms of dystonia would appear to indicate that this structure functions in some manner in their production.^{5, 6, 7, 13} Yet dystonia is but one of the symptoms which have been demonstrated to be relieved by such measures, indicating that the globus pallidus does not determine the final configuration of movements, rather they must be partially patterned at other levels of the nervous system.⁵ Spiegal postulates that the pallidofugal fibers are of two varieties: facilitory and inhibitory.¹⁹ In diffuse diseases involving the corpus striatum, the hypertonus which is manifested is thought to be due to the loss of the inhibitory influence of the globus pallidus upon lower centers.^{5, 6, 19} That section of pallidofugal fibers (ansatomy) does not make the symptoms more severe, seems to indicate a facilitory influence being removed which had functioned without check.¹⁹ Cooper likewise believes that the globus pallidus functions as a nonspecific facilitory influence in the production of abnormal movements in disease states of the central nervous system characterized by such phenomena.⁵

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 W. 4th Street, Topeka, Kansas.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Norman C. Bos, M.D.

2415 N. Main
Hutchinson, Kansas

William Brown, M.D.

7501 Mission Rd.
Shawnee Mission, Kansas

Orval L. Hamm, M.D.

Gardner Community Med.
Center
Gardner, Kansas

Kenneth E. Hedrick, M.D.

315 Wolcott Bldg.
Hutchinson, Kansas

George M. Hostetler, M.D.

Hertzler Clinic
Halstead, Kansas

George Iturralde, M.D.

1557 Lexington Ct.
Kansas City 10, Mo.

Vernon Klierer, M.D.

706 11th St., SW
Independence, Kansas

Gary M. Lee, M.D.

342 Missouri St.
Lawrence, Kansas

William L. Matthew, M.D.

103 S. Kansas
Olathe, Kansas

John Patterson, M.D.

6300 Glenwood
Shawnee Mission, Kansas

Radiology

(Continued from page 269)

majority of cases it is due to a spontaneous cholecystoenteric fistulous formation although one should keep in mind two less frequent entities: gas-forming-bacillus infection or an incompetent sphincter of Oddi.^{5, 10} Recently, Susman has emphasized the difference in the appearance of gas in the biliary duct system and gas emboli in the portal vein. He states that in the former, "gas enters the major radicals and is prevented from entering the minor radicals by the continuous flow of bile" while in the latter, "the bubbles are carried into the finer peripheral venous radicals in the liver by the centrifugal flow of portal venous blood" thus giving a totally different radiographic picture.

Summary

1. A case of gallstone obstruction of the sigmoid colon is reported.
2. Some references to the literature concerning incidence of cholecystocolic fistula is made.
3. The main interesting diagnostic features are discussed.

References

1. Bernhard, F.: Die Spontanen inneren Gallenfisteln und ihre operative Behandlung. Deutsche Ztschr. f. Chir. 242:493-506, 1934. Ibid., pp. 736-756.
2. Courvoisier, L. G.: Casuistisch-statistische Beiträge zur Pathologie und Chirurgie der Gallenwege. Leipzig, F. C. W. Vogel, 1890.
3. Figiel, L. S., Figiel, S. J., Wietersen, F. K., Dranginis, E. J.: The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine, Vol. LXXIV, No. 1, July, 1955, p. 22. Gallstone Obstruction; Clinical and Roentgenographic Considerations.
4. Foss, H. L., Summers, J. D.: Annals of Surgery, Vol. 115, No. 5, May, 1942, p. 721. Intestinal Obstruction From Gallstones.
5. Halligan, E. J., Baber, J. J.: The Clinical Significance of Air and Barium in the Biliary Tract. A.M.A. Archives of Surgery, July, 1956, Vol. 73, pp. 66-73.
6. Judd, E. S., and Burden, V. G.: Internal Biliary Fistula. Ann. Surg. 81:305-312, January, 1925.
7. Lichtman, S. S.: Disease of the Liver, Gall Bladder and Bile Ducts, Philadelphia, Lea & Febiger, 1953.
8. Lomhoff, I. I., Jerome Dubow, J.: Gallstone Ileus Associated With Diverticulitis of the Colon. The American Journal of Roentgenology and Radium Therapy, Vol. LX, No. 1, July, 1948, pp. 86-89.
9. Marshak, R. H., Henkin, W.: Cholecystocolic Fistula. Radiology, Vol. 53, No. 4, pp. 555-558, October, 1949.
10. McLaughlin, C. W., Raines, M.: Obstruction of the Alimentary Tract From Gall Stones. The American Journal of Surgery, Vol. LXXXI, No. 4, pp. 424-430.
11. Rigler, L. G., Bowman, C. N., and Noble, J. S.: Gallstone Obstruction. J.A.M.A. 117:1753-59, 1941.
12. Scott, M. G., Pygott, F., and Murphy, L.: The Significance of Gas or Barium in the Biliary Tract. Brit. J. Radiol. 27:253, 1954.
13. Susman, N., Scuturia, H. R.: Gas Embolization of the Portal Venous System. The American Journal of Roentgenology and Radium Therapy, Vol. 11, No. 5, May, 1960, p. 847.
14. Waggoner, C., and Lemone, D.: Clinical and Roentgen Aspects of Internal Biliary Fistulas: Report of 12 Cases, Radiology 53:31, 1949.

Happy the man, and happy he alone,
He who can call today his own:
He who, secure within, can say:
"Tomorrow, do thy worst, for I have liv'd today."
—Horace

The President's Message

DEAR DOCTOR:

There has been a steady dropping off in the number of applicants for entry into the medical schools of the Country during the past few years which the schools regret, as it limits their range of selectivity. This may be partly due to the constant threat of increasing socializing of medicine.

Most young men taking up the study of medicine do not realize what a broad field of life work lies before him. He may later choose from many lines of professional activity, and having chosen and worked at it for a time, may see other more interesting possibilities, and make a complete or partial change.

He may decide on General Practice, with its family doctor aspect, or may select any one of several dozen specialties. He may want to teach, or do research in some great university or in some industrial or commercial corporation. He may prefer to practice alone, or prefer to join a group. He may want to give his professional life to his Country in the army, navy, or some other branch of government activity. The work of the Church as a medical missionary may appeal to him. Post-graduate instruction is so available, especially here in Kansas, that he may easily keep up-to-date or study for different work in which he is interested, increasing the scope of his practice, or preparing to move to a different field of practice.

In all the above suggestions, he should maintain his ethical and humanitarian standards, helping to preserve the glorious heritage of his profession and at all times aid in guiding and aiding the work of organized medicine, which if properly implemented should be a great bulwark of defence against those who are enemies of regular medicine.



Fraternally yours,

Harold M. Glover, M.D.

President



The 1961 Annual Session

The 102nd Annual Session of the Kansas Medical Society was concluded on Wednesday, May 3. It was during the meeting, and frequently since, referred to as among the most successful annual sessions of all time. Perhaps many factors contributed to this.

Not least among these must be listed as the planning and preparation performed by R. K. Purves, M.D., of Wichita, General Chairman, his committee, the members and the staff of the Sedgwick County Medical Society. Rarely has a meeting been so carefully planned in advance and operated as smoothly as did this. Another reason surely is the excellence of the scientific program presented by outstanding physicians from various parts of the country. This program was obtained through the efforts of L. P. Cawley, M.D., of Wichita, and his committee. There were times when the meeting hall appeared filled.

The business part of the annual session was conducted with precision by F. E. Wrightman, M.D., president. His innovation to appoint two reference committees created a greater degree of efficiency in the review of more than 60 individual resolutions introduced to the House of Delegates. L. S. Nelson, Jr., M.D., of Salina, and E. D. Yoder, M.D., of Denton, were chairmen of the two reference committees, who together with members on those committees performed a great service to the Society.

The presentation of scientific exhibits was outstanding this year and the return of commercial exhibits met with approval of the members. Especially appreciated was the fact that all events were all under one roof and easily accessible.

Perhaps the greatest factor in the success of this meeting is represented by the physicians who came from all parts of the state. A total of 510 members of the Kansas Medical Society registered at this meeting which, according to recent experiences is excellent. They brought 264 guests. And 210 Medical Assistants registered at their convention, immediately

preceding that of the Kansas Medical Society, and the Auxiliary registered 270, for a total of 1,254.

Plans are already being made by the physicians of Wyandotte County for the 1962 annual session in Kansas City April 30 through May 2, and by the Saline Medical Society for the 1963 annual session May 6, 7, and 8.

(The Division of Institutional Management of the State Board of Social Welfare prepared a statement of the functions and admission procedures of the eleven state institutions under its direction. This information will be published serially during the next several months.—Ed.)

State Hospitals for the Mentally Ill

The three state hospitals for the mentally ill are: Larned State Hospital, Larned, Kansas; Osawatomie State Hospital, Osawatomie, Kansas; and Topeka State Hospital, Topeka, Kansas. All modern forms of psychiatric treatment are available at each hospital.

The patient, patient's estate, and parent, spouse or child of the patient, collectively or individually, are liable under the laws of Kansas for payment of charges for care and maintenance of patients in the three mental hospitals and the three institutions for the mentally retarded. The charge against the patient's funds or his estate is \$28.00 per week, and the charge against the responsible relative is \$12.00 per week. No patient is denied the services of the hospitals, however, solely because of inability to pay.

For administrative purposes, the state is divided into three mental hospital districts, each of which serves approximately one-third of the Kansas population. The Larned State Hospital district includes 47 counties in western Kansas; Osawatomie State Hospital serves 22 counties in southeast Kansas; and

Topeka State Hospital has a district covering 36 counties in northcentral and northeast Kansas.

Persons may be admitted to a state hospital who have lived in Kansas for one year continuously immediately prior to application for admission or commitment, except that in cases where residence cannot be determined or where a medical emergency exists, residence requirements may be waived.

Three principal procedures are used to admit patients to Kansas state mental hospitals—one voluntary, and two through court process. Applications for all three types are sent to the Division of Institutional Management for processing.

One type of admission procedure is *voluntary application*. The patient initiates the request for hospitalization by completing and signing the voluntary application form. No court record is made of such application. The patient states why he believes he needs hospitalization, and a physician, licensed to practice in Kansas, must attest that the applicant is in need of treatment, or the hospital superintendent may determine need for treatment. A voluntary application also may be completed after dismissal of a referral application. Voluntary application forms are available in the office of the Division of Institutional Management, State Office Building, Topeka, Kansas; or from county directors of social welfare.

A voluntary patient may leave the hospital of his own volition, or may remain until discharged by the hospital staff. In the event that he wants to leave, he shall give notice in writing to the superintendent. He may not be held more than ten days after the presentation of such request. Usually, the patient is released immediately if he is not considered dangerous to himself or to others; but if he is considered dangerous, action is then taken through the probate court to keep him in the hospital on a court commitment.

The most common type of admission is the *referral*, by the probate court, for psychiatric examination and evaluation. A petition for commitment is filed in the probate court of the county where the patient lives or where he is presently located. Upon receipt of the petition, the court may then refer the person, unless an immediate hearing is requested, to the hospital for an examination and evaluation. Referral applications are usually accompanied by a physician's statement as to the patient's need for examination and evaluation. Patients so referred may be detained by the hospital for a period not to exceed ninety days. At the close of the referral period, or sooner if examination is completed, a report is made by the hospital to the court. Upon receipt of the report and recommendation from the hospital, the court may either dismiss the petition or set the petition for hearing for commitment.

The third type of admission procedure is formal

court commitment, which now accounts for only a small percentage of the admission applications. In this procedure, the court may schedule a hearing for commitment on the filing of a complaint, or may refer the person to the hospital for evaluation, as shown above, and delay such commitment until a report has been received. At the hearing of a petition for commitment, the court has the authority to determine whether it is best for the patient to be present at the hearing, or not to be present; but in either case he shall be represented by counsel. If he has no counsel, the court shall appoint suitable counsel to represent him.

The hearing may be before a commission of two licensed doctors of medicine who assist the court and file a report of their findings with the court. Trial by jury may be ordered, if demanded, in which case the jury consists of six persons, one of whom must be a licensed doctor of medicine. A formal court commitment results in the removal of civil rights from the patient. These rights are returned by the probate court upon approval of a petition for restoration, or upon a discharge as restored by the state hospital superintendent.

Other state mental hospital admissions are criminal insane, sex deviate and drug addict cases. Larned State Hospital has a special maximum security section for the criminal insane where all such male patients are committed. Sex deviate and drug addict cases may go to the mental hospital serving the district in which the trial court is located, for psychiatric examination and evaluation. Persons convicted of any offense against public morals and decency relating to sex crimes in which perversion or mental aberration is or appears to be involved, or where the defendant appears to be mentally ill, may have sentence deferred until a report of mental examination can be secured to guide the judge in determining proper disposition of the defendant. In the case of any person charged with violation of the narcotic drug act, the judge, either before or after conviction, may defer sentence or trial until the report of mental examination is secured. The judge, after receipt of the mental examination report, may then commit either sex deviate or drug addict cases to the State Hospital for the Dangerous Insane at Larned State Hospital for treatment, or may otherwise sentence them in accordance with the statute governing the crime.

In addition to inpatient service, each of the three mental hospitals has an outpatient department which furnishes psychiatric examination and/or treatment facilities to patients who do not require hospitalization. In many cases the outpatient department also serves as a diagnostic and evaluation unit for patients newly admitted to the institution. Application for outpatient treatment services should be made directly to the hospital superintendent.

Sportsmen's Events

State Meeting, Wichita, May 1, 1961

Although the elements conspired against them, with low temperatures, blustery winds and intermittent rains, as large a group of sportsmen physicians as ever braved the weather turned out to match skills, renew old friendships, and swap tall tales.

At the Ark Valley Gun Club 21 shooters turned in very respectable scores, led by Dr. George Gill, Sterling, perennial chairman of these events.

A new event for fishermen, Fly and Bait Casting, was organized by Dr. Harold O'Donnell, Wichita.

Under the very able guidance of Dr. Ralph Hale, Wichita, 134 golfers played at the Crestview Country Club, where the annual Sportsmen's Dinner was enjoyed in the evening by more than 200 physicians and guests.

To continue the good work previously done by officers of the Kansas State Medical Golf and Trap Shoot Assn., the following officers were elected for the coming year:

President Dr. William Crouch, Topeka
Vice President Golf Dr. A. W. Bradford, Kansas City
Vice President Trap Dr. George Gill, Sterling
Secretary-Treasurer Dr. Fred Ford, Topeka

GOLF AWARDS

Championship Flight

Winner: Ed Ashley, Chanute—\$15 Gift Certificate, *Woolf's Clothing, Wichita* and Trophy, *Duffens Optical Co., Topeka*
2nd Lo Gross: H. L. Bunker, Jr., Junction City—Scotch Cooler, *Berroughs Wellcome*
3rd Lo Gross: Ralph Hale, Wichita—\$15 Gift Certificate, *McCormack's Corset Shop, Wichita*
4th Lo Gross: George Gsell, Wichita—\$15 Gift Certificate, *White Labs*
5th Lo Gross: Penny Jones, Lawrence—\$10 Gift Certificate, *Coe Surgical, Wichita*
6th Lo Gross: Bob Norris, Wichita—Gold Golf Ball, *Mead Johnson*
1st Lo Net: Jack Coyle, Coffeyville—Trophy, *Golf Assn.*
2nd Lo Net: Fred Bosilevac, Kansas City—Clock, *Hoffman, LaRoche*
3rd Lo Net: Jack Tiller, Wichita—\$5 Gift Certificate, *Cooper's, Wichita*
4th Lo Net: Bill Padgett, Wichita—Shaving Lotion, *Hawk Pharmacy, Wichita*
5th Lo Net: John Lattimore, Topeka—Gold Golf Ball, *Mead Johnson*

First Flight

Winner: C. A. Goodpasture, Wichita—Trophy, *Golf Assn.*
2nd Lo Gross: W. D. Pitman, Pratt—Doctor's Bag, *Goetz-Niemer, Wichita*
3rd Lo Gross: K. H. Lohmeyer, Emporia—Sportsman's Light, *Eli Lilly Co.*
4th Lo Gross: M. R. Knapp, Wichita—Cross Pen, *U. S. Vitamin Corp.*
5th Lo Gross: Don Cooper, Stillwater, Oklahoma—Gold Golf Ball, *Mead Johnson*

1st Lo Net: Harry Hidaka, Wichita—12 golf balls, razor, *Hawk Pharmacy, Wichita*
2nd Lo Net: L. E. Knapp, Wichita—Clock, *Geigy Corp.*
3rd Lo Net: Howard Joseph, Lawrence—12 Glasses, *Pitman Moore*
4th Lo Net: M. J. Rucker, Sabetha—3 golf balls, *Eli Lilly*
5th Lo Net: Vern Minnick, Junction City—Gold Golf Ball, *Mead Johnson*

Second Flight

Winner: Harry Lazar, Wichita—Trophy, *Golf Assn.*
2nd Lo Gross: Chas. Fleckenstein, Onaga—Silver cream and sugar set, *Smith, Kline & French*
3rd Lo Gross: George Marshall, Colby—Pocket light, *Munn's Medical Supply*
4th Lo Gross: Tom Dechario, Westmoreland, Medical Almanac, *Saunders*
5th Lo Gross: Robert Wilson, Wichita—3 golf balls, *Eli Lilly*

1st Lo Net: J. D. Gough, Chanute—6 golf balls, *Doho Chemical Co.*
2nd Lo Net: John Lance, Wichita—Shaving Lotion, *Hawk Pharmacy*
3rd Lo Net: Don Cronin, Wichita—12 glasses, *Pitman Moore*
4th Lo Net: Frank Brosius, Wichita—Pocket light, *Munn's Medical Sup., Topeka*
5th Lo Net: Gene Enns, Newton—3 golf balls, *Eli Lilly*

Third Flight

Winner: Wier Pierson, McPherson—Trophy, *Golf Assn.*
2nd Lo Gross: K. E. Hedrick, Hutchinson—Sport's seat, *Washington National Insurance Co.*
3rd Lo Gross: Norman Bos, Hutchinson—Shaving lotion, *Maule Drug Co., Wichita*
4th Lo Gross: Harold Hyndman, Wichita—Pocket light, *Munn's Medical, Topeka*

1st Lo Net: Tom Hurst, Wichita—Wallet, *Maule Drug Co., Wichita*
2nd Lo Net: Jack Moseley, Wichita—6 golf balls, *Crank's Drug Co., Wichita*
3rd Lo Net: Joseph DePoe, Winfield—3 golf balls, *Crank's Drug Co., Wichita*
4th Lo Net: Jerry Menaker, Wichita—3 golf balls, *Crank's Drug Co., Wichita*

Fourth Flight

Winner: Arlo Edmonson, Wesley Hosp.—Trophy, *Golf Assn.*
2nd Lo Gross: R. L. Krause, Goessel—Golf club head mitts, *Ortho*
3rd Lo Gross: Geo. Mastio, Wichita—6 golf balls, *Poythress*
4th Lo Gross: Ernest Moser, Holton—3 golf balls, *Poythress*
5th Lo Gross: Bert Stofer, Wichita—3 golf balls, *Poythress*

1st Lo Net: Dean Stucky, Wesley Hosp.—Ice Crusher, *Crank's Drug Store, Wichita*
2nd Lo Net: Findley Law, Ellsworth—6 golf balls, *Eaton Labs.*
3rd Lo Net: Marion Nunemaker, Hutchinson—3 golf balls, *Eaton Labs.*
4th Lo Net: Allen Sanders, Wichita—3 golf balls, *Eaton Labs.*

Blind Bogey: Cliff Mullen, Kansas City—Blender, *Archer Pharmacy, Wichita*

TRAP AND SKEET AWARDS

Trap

Winner: Ed Brinton, Wichita
2nd: W. A. Smiley, Junction City
3rd: Geo. Gill, Sterling

Skeet

Winner: C. L. Seuka, Wichita, and Dr. Neiberg, Kansas City, Tie for first

FISHERMEN'S FLY CASTING

John M. Morgan, Emporia—Trophy, *Golf Assn.*
N. L. Francis, Wichita—Spinning reel, *Crank's Drug Store, Wichita*
Wm. Scales, Hutchinson—\$5 Gift Certificate, *Miller-Hughes Marine, Wichita*

Editor's Annual Report

Read at the First Session, House of Delegates

The first meeting of the House of Delegates of the Kansas Medical Society for the 1961 Annual Session was held on Monday, May 1, 1961 at the Broadview Hotel, Wichita.

Dr. Orville R. Clark, Editor, read his annual report presented as follows:

"In the past year the JOURNAL has continued most of the same policies and there have been no radical changes in format. The total pages of text material (exclusive of advertising) was increased a little over 1959 (632 compared to 576) which I believe is principally in the category of reports of the work of committees and other activities of the Society. The usual number of original articles, clinical pathological conferences, tumor conferences and student theses have been published, and I want to take this opportunity to thank all who have contributed to these papers for their participation.

Financially, the JOURNAL is again on the good side of the balance line, thanks to a generous amount of advertising. Details and figures will not be given here, but are available for any member who cares to have them. As a means of returning to the Society a part of that portion of your KMS dues which pay for your subscription to the JOURNAL, we have repaid \$5,698.01, which had once been advanced to the JOURNAL by the Society in less sunny days, and have purchased or replaced about \$1,300 worth of office equipment for the Society. Since the JOURNAL is actually a committee of the Society, this is a logical procedure, and reduces the Society's expenses accordingly.

It is apparent that advertising revenue will be less in 1961, than in 1960. This is not a situation peculiar to the JOURNAL, or even to state medical journals as a whole, but affects almost all medical publications, state and national alike. It reflects the more conservative attitude of the pharmaceutical manufacturers and distributors resulting from the Senate investigation of the industry last year, which criticized severely the expenditure of large amounts of money for promotion. It also reflects the fact that fewer new preparations were introduced, and so there is less advertising for that purpose.

We are proud to have included the printing of reproductions of color photographs in one article during the year, and were flattered by their reproduction in one of the nationally distributed publications. Though such illustrations are expensive, they add a great deal to the article being illustrated.

I have, in previous years, mentioned our concern about a shortage of papers available for publication. This condition has not improved, and were it not for the large number of papers we received from the University of Kansas Medical Center (which amounted to 44 per cent of the total for the year), we would indeed be in serious trouble. The support of the JOURNAL by our Medical School is probably to be expected, but I would indeed be remiss if I did not express appreciation for the excellent rapport which we enjoy with the Medical Center—and I say this in spite of the fact that they took our Miss Pauline Farrell from us two years ago!

The Editorial Board is made up of the same members who have served so well for several years—Drs. David E. Gray, Richard Greer, Dwight Lawson, and John A. Segerson. It has been a pleasure to have had their association in this work. One could ask for no more than they have unselfishly and unfailingly done, and it has required a good many hours for the reading and editing of manuscripts and for conferences regarding the JOURNAL affairs. I want to thank each one of them once more.

I also want to thank Dr. Jesse D. Rising for the tremendous contribution which he has made during his first year as official representative of the JOURNAL at the University of Kansas Medical Center. The wonderful KUMC issues of March, and the excellent papers we have had from the University, both speak his praise.

As most of you know, Dallas Whaley, who had been with the JOURNAL and the Society since May, 1959, left our office to join the staff of the Sedgwick County Medical Society on January 1. We wish him well in this new situation, for which he is well prepared. Mrs. Betty Marsh joined the JOURNAL staff as Managing Editor and Advertising Manager in January, 1961, and has already proved herself a personable, capable and cooperative individual, and we hope that her tenure here will be a long one.

The term of my appointment to the Editorial Board, and that of Doctor Greer, expire at this meeting, and it will be the responsibility of the Council to make appointments for these places.

As the future of scientific meetings of state societies has been questioned, so has the future of state medical journals been questioned. I hope that the competition of the national and specialty journals

(Continued on page 282)

Annual Meeting

Officers Elected and Specialty Group Sessions

The 102nd annual meeting of the Kansas Medical Society, held in Wichita, May 1-3, was attended by 510 members of the Society. Also registered for the session or affiliate meetings were 264 guests, 210 members of the Kansas Medical Assistants' Society, 270 members of the Woman's Auxiliary to the Kansas Medical Society, and 150 members and guests of the Kansas Society of Medical Technologists and the Kansas Society of Pathologists.

The program announced in the April issue of the JOURNAL was presented. The annual banquet was highlighted by the administration of oath of office as president for 1961-1962 to Dr. H. M. Glover, Newton, with Dr. F. E. Wrightman, Sabetha, presiding. Entertainment was furnished by the Boeing Stratosingers of Wichita, a mixed chorus presentation of fifty-five voices.

Officers for 1961-1962

| | |
|-----------------------------|--|
| President | Dr. H. M. Glover, <i>Newton</i> |
| President-Elect | Dr. N. L. Francis, <i>Wichita</i> |
| Immediate Past President | Dr. F. E. Wrightman, <i>Sabetha</i> |
| First Vice President | Dr. H. Clair O'Donnell, <i>Ellsworth</i> |
| Second Vice President | Dr. J. C. Mitchell, <i>Salina</i> |
| Constitutional Secretary | Dr. Leland Speer, <i>Kansas City</i> |
| Treasurer | Dr. J. L. Lattimore, <i>Topeka</i> |
| A.M.A. Delegate, 1961-1963 | Dr. L. R. Pyle, <i>Topeka</i> |
| A.M.A. Alternate, 1961-1963 | Dr. Glenn R. Peters, <i>Kansas City</i> |
| A.M.A. Delegate, 1962-1964 | Dr. G. F. Gsell, <i>Wichita</i> |
| A.M.A. Alternate, 1962-1964 | Dr. Wm. J. Reals, <i>Wichita</i> |

Concillors for 1961-1962

1. Dr. Emerson D. Yoder, Denton, term expiring 1963
2. Dr. Joseph W. Manley, Kansas City, 1964
3. Dr. George R. Maser, Mission, 1963
4. Dr. Dick B. McKee, Pittsburg, 1964
5. Dr. Ralph G. Ball, Manhattan, 1963
6. Dr. James A. McClure, Topeka, 1962
7. Dr. J. L. Morgan, Emporia, 1962
8. Dr. J. Gordon Claypool, Howard, 1963
9. Dr. J. C. Mitchell, Salina, 1963
10. Dr. John N. Blank, Hutchinson, 1962
11. Dr. William J. Reals, Wichita, 1964
12. Dr. Albert C. Hatcher, Wellington, 1962
13. Dr. A. M. Cherner, Hays, 1964
14. Dr. Clair J. Cavanaugh, Great Bend, 1964
15. Dr. Evan Williams, Dodge City, 1964
16. Dr. Edward F. Steichen, Lenora, 1962
17. Dr. J. O. Austin, Garden City, 1963

Editorial Board

Dr. Orville R. Clark, chairman of the Editorial Board and Editor of the JOURNAL, was reappointed to both positions at a meeting of the Council held in Wichita on May 3 following the last House of Delegates. Dr. Richard Greer was also reappointed to a three-year term on the Board. Serving with them are

Dr. David E. Gray and Dr. Dwight Lawson, whose terms will expire in 1962; and Dr. John A. Segerson, whose term will expire in 1963. All five are Topeka physicians.

Blue Shield

Dr. James B. Fisher, Wichita, was re-elected President of the Kansas Blue Shield at a meeting held during the past state meeting. All other officers were also re-elected: Dr. E. Burke Scagnelli, Dodge City, first vice-president; Dr. Robert K. Purves, Wichita, second vice-president; and Dr. Charles S. Joss, Topeka, secretary. The next annual meeting of Kansas Blue Shield will be held the Sunday preceding the Society's annual meeting in the same town.

E.E.N.T. Section

Elected to serve as officers of the E.E.N.T. Section of the Kansas Medical Society for the coming year, are: Dr. Charles McCoy, Hutchinson, president; Dr. Ruth Montgomery-Short, Halstead, vice-president; Dr. Larry Calkins, Kansas City, secretary. The Council representative elected is Dr. Cliff Mullen, Kansas City and his alternate is Dr. Byron Ashley, Topeka. The Delegate is Dr. Charles McCoy, Hutchinson and his alternate is Dr. Fred Bosilevac, Kansas City. The Section will hold a business meeting in conjunction with the Society's 1962 meeting in Kansas City.

Woman's Auxiliary to the Kansas Medical Society

Mrs. William Braun, Pittsburg, was installed as president of the Woman's Auxiliary to the Kansas Medical Society at the organization's annual convention in Wichita, May 1-3. Other officers elected at that session were: Mrs. H. Lee Barry, Wichita, president-elect; Mrs. Virgil Brown, Sabetha, first vice-president; Mrs. R. H. O'Neil, Topeka, second vice-president; Mrs. Lyle G. Glenn, Protection, third vice-president; Mrs. E. Burke Scagnelli, Dodge City, fourth vice-president; Mrs. Lee H. Leger, Kansas City, recording secretary; Mrs. Maurice Stock, Pittsburg, corresponding secretary; and Mrs. John B. Jarrott, Hutchinson, treasurer. Their next annual session will be held in conjunction with the Society's in Kansas City.

Kansas Medical Assistants' Society

The 21st annual meeting of the Kansas Medical Assistants' Society was held in Wichita, April 29, 30,

May 1. At the business session the group installed the following officers: Virginia Brand, Lawrence, president; Norma Pryor, Wichita, president-elect; Kay Bradford, Lawrence, first vice-president; Helen Dillman, Winfield, second vice-president; Dorothy Gunn, Great Bend, treasurer; and Manetta Koepsel, Wichita, secretary. The next annual meeting will be held in Kansas City, starting two days before the Kansas Medical Society's annual meeting.

Kansas Radiological Society

At the annual meeting of the Kansas Radiological Society held February 20, 1961, the following officers were elected: President, Lewis G. Allen, M.D., Kansas City; Vice-President, Richard F. Connard, M.D., Emporia; Secretary-Treasurer, Roger K. Wallace, M.D., Manhattan.

Kansas Pediatric Society

The following officers were named by the Kansas Pediatric Society: William H. Crouch, M.D., Topeka, President; Dr. Richard Dreher, Salina, Vice-President; and Antoni M. Diehl, Kansas City, Secretary-Treasurer. Their next meeting will be in Emporia on September 9.

Kansas Academy of General Practice

The president of this organization is J. Allen Howell, M.D., Wellington. Dr. Gaylord P. Neighbor, Kansas City is president-elect; Dr. Norman H. Overholser, El Dorado, vice-president; and Dr. Clyde W. Miller, Wichita, secretary-treasurer. This group will hold its next annual meeting in Wichita, October 3, 4, 5, 1961.

Kansas Members of the American College of Physicians

Dr. Fred J. McEwen, Wichita, is serving the second year of his three year term as the Governor for Kansas to the American College of Physicians. Their next annual meeting will be held in Emporia on February 23, 1962.

Kansas Society of Clinical Hypnosis

Earl R. Sheets, D.D.S., has been elected president of this Chapter. Serving with him are Dr. Hugh D. Riordan, Wichita, vice-president; Dr. M. M. Tintorow, Wichita, secretary; and Dr. E. B. Struxness, Hutchinson, treasurer. The annual meeting is held in conjunction with the American Society of Clinical Hypnosis. This will be held in St. Louis on October 26, 27, 1961.

Kansas Chapter of the American College of Surgeons

Dr. H. S. O'Donnell, Ellsworth, was elected president at the last annual meeting of the Kansas Chap-

ter of the American College of Surgeons. Dr. William Valk, Kansas City, was elected vice-president; and Dr. Robert Myer, Newton, is secretary-treasurer. Their next annual meeting is scheduled for October, 1961.

Kansas Society of Medical Technologists

Sister Mary Dolorita (Mohr), MT(ASCP), Wichita, was installed as president of the Kansas Society of Medical Technologists at the annual convention in Wichita, May 2-3. Other officers are: Delbert Bonnel, MT(ASCP), Topeka, vice-president; Doris Haun, MT(ASCP), Salina, secretary; and Kenneth Davis, MT(ASCP), Dodge City, treasurer. The next annual meeting site will be Kansas City at the same time as the Kansas Medical Society's meeting.

The Kansas Society of Pathologists

Dr. John E. Johnson, Kansas City, was installed as president of the Kansas Society of Pathologists at the annual convention in Wichita on May 2-3. Dr. Leo P. Cawley, Wichita, will remain as Secretary-Treasurer. The ballots for the President-Elect had not yet been counted at press time. The next annual meeting will be in Kansas City at the same time as the Society's meeting.

Kansas Chapter of the American College Of Chest Physicians

The following officers were named by the Kansas Chapter of the American College of Chest Physicians at their annual meeting: Dr. Benjamin M. Matassarini, Wichita, president; Dr. John G. Shellito, Wichita, vice-president; Dr. John L. Morgan, Emporia, secretary-treasurer.

The Chapter held its annual meeting in conjunction with the Society's state meeting in Wichita. They plan to hold their next meeting with the Society in Kansas City in 1962.

Kansas Psychiatric Society—District Branch Of American Psychiatric Association

At its spring meeting the Kansas District Branch of the American Psychiatric Association elected to the office of president Dr. R. F. Schneider, Kansas City. Serving with Dr. Schneider are Dr. Frank H. Harris, Wichita, president-elect; Dr. R. E. Reinert, Topeka, secretary; and Dr. William H. Robinson, Topeka. The Branch's next meeting is scheduled in the fall. The date and place to be determined.

Kansas Obstetrical Society

Arnold H. Baum, M.D., Dodge City, was elected president at the last meeting of the Kansas Obstetrical Society in March, 1961. President-Elect is David Gray, M.D., Topeka; Vice-President is Galen W. Fields, M.D., Scott City; and Secretary-Treasurer is Jack Schroll, M.D., Hutchinson. Their next meeting

will be in November in Kansas City in conjunction with the Annual OB-Gyn. Course.

Kansas Orthopedic Club

Dr. John Jarrott, Hutchinson, reports that the Kansas Orthopedic Club officers remain the same as last year with himself as president; and Dr. Henry O. Marsh, Wichita, secretary-treasurer. The Club plans to hold a meeting the latter part of September in Topeka.

Kansas Society of Anesthesiology

At the annual meeting of the Kansas Society of Anesthesiology the following officers were elected: Dr. Ray T. Parmley, president, Wichita; Dr. Wray Enders, vice-president, Kansas City; Dr. Robert Robinson, secretary, Wichita; and Dr. Joyce R. Sumner, treasurer, Wichita. Their next meeting will be in the early fall. The exact time and place have not been decided.

Editor's Annual Report

(Continued from page 279)

for quality papers will not be so great that it will crowd out the scientific portion of the various state journals—and more particularly of the JOURNAL OF THE KANSAS MEDICAL SOCIETY. For your cooperation and support in past years I thank you, and in the same breath I ask you to continue it in an increasing amount in the future. There is available in the state a great deal of interesting clinical material and clinical experience, and we would like to see reports of more of it in the JOURNAL.

Respectfully submitted,

Orville R. Clark, M.D.

Editor"

Tumor Conference

(Continued from page 266)

that the tumor we have demonstrated today also represents the ultimate response to a chronic inflammatory process which was limited to a single segment. Our final diagnosis is adenocarcinoma of proximal bronchiolar origin, probably multifocal.

Dr. Tice: I had always been of the impression that bronchiolar carcinoma usually involved the entire lung.

Dr. Mantz: We do not feel that this case is typical of alveolar cell or terminal bronchiolar carcinoma. Alveolar cell carcinoma most likely begins in the terminal bronchioles and extends into the alveoli and frequently is diffuse. Three morphologic forms have been described: 1) the single, small nodule variety,

2) the multinodular variety and 3) the diffuse variety. It is apparent now that these three types are merely variations in degree of extension from a single primary lesion. We feel that the carcinoma in this case originated in the more proximal portion of the bronchioles.

Student: What is the prognosis for this patient?

Dr. Mantz: I would suspect that it is quite good. This lesion is entirely different from the ordinary bronchogenic carcinoma. Subsequent events may, of course, prove me entirely wrong, but I believe this patient's chance for survival is good.

Dr. Reiger: I think that even if this were histologically a less favorable tumor the chance for a five year survival would still be good in view of the absence of lymph node involvement and the lack of extension of the tumor to the pleura.

Dr. Foret: Since this tumor appears to be of multifocal origin, what will prevent the same factors which caused it from operating in the remainder of the right lung or in the left lung to produce similar lesions?

Dr. Mantz: My opinion is that this carcinoma is truly secondary to the atypical bronchiolar hyperplasia of chronic inflammation and is limited to the area in which the chronic inflammation occurred. A careful and extensive examination of the remainder of the lobe failed to disclose any evidence of significant inflammation or bronchiolar epithelial hyperplasia.

Dr. Fink: Do you equate the papillary atypical bronchiolar epithelial hyperplasia with the tumorlets of the British authors?

Dr. Mantz: I believe the tumorlets are a neoplastic exaggeration of exactly the same process. These microscopic epithelial nodules can be found not infrequently at autopsy in areas of chronic fibrosing pneumonitis, usually in a subpleural location, or at the border of healing infarcts.

Dr. Fink: The present case suggests that these lesions need not always be entirely benign, but may under same undefined circumstances have dangerous potentialities.

References

1. Spain, D. M.: "The Association of Terminal Bronchiolar Carcinoma with Chronic Interstitial Inflammation and Fibrosis of the Lungs," *Am. Rev. Tuberc. & Pulmon. Dis.* 76:559, 1957.
2. Beaver, D. L. and Shapiro, J. L.: "A Consideration of Chronic Pulmonary Parenchymal Inflammation and Alveolar Cell Carcinoma with Regard to a Possible Etiologic Relationship," *Am. J. Med.* 21:879, 1956.

As soon as a wife presents her husband with a child, her capacity for worry becomes acuter; she hears more burglars, she smells more things burning, she begins to wonder, at the theater or the dance, whether her husband left his service revolver in the nursery.—*James Thurber*

Official Proceedings

Report of 1961 Meeting of the House of Delegates

The transactions of the 102nd Annual Session will be published in this and the July issue of the JOURNAL.

Included are all resolutions in numerical order as they were adopted by the House of Delegates. Eliminated from the minutes as preserved in the executive office are such things as who made the motions, the discussion, amendments, and the many formalities of the meeting. Since these do not reflect Society policy, the proceedings will list only the resolutions in the form in which they were adopted.

In several instances two or more resolutions were applied to similar subjects. These were combined by reference committees into one. A few resolutions were not adopted. Those are not recorded in this report.

RESOLUTION NO. 1

Councilor Reports

WHEREAS, each of the 17 councilors reported the activities of interest to medicine in his district, and

WHEREAS, each councilor attended numerous meetings during the year and has well directed the affairs of medicine within his district, therefore

Be It Resolved that the House of Delegates express its gratitude to the councilors of the Kansas Medical Society for their efforts, and

Be It Further Resolved that the reports of the councilors be accepted.

RESOLUTION NO. 2

Blue Shield

WHEREAS, James B. Fisher, M.D., president of Blue Shield, has prepared an excellent and an enlightening report which is published in the handbook

Be It Resolved that the president and the Board of Trustees and the staff of Kansas Blue Shield be commended for their efforts and that the report be accepted.

RESOLUTION NO. 3

Blue Shield Special Projects

WHEREAS, the report of the president of Kansas Blue Shield reviews a special plan developed by the medical society of Butler County, and

WHEREAS, new programs in Blue Shield can be developed only as pilot studies are undertaken, and

WHEREAS, this House of Delegates in a previous session recommended that each county medical so-

ciety desiring to do so is encouraged to explore with Blue Shield pilot plans to be operated within the county after approval has been obtained from the county medical society involved, therefore

Be It Resolved that this House of Delegates again approve its previous action and again encourage county medical societies to explore new services and new plans for Blue Shield which, if approved, may then be placed into operation within the county involved.

RESOLUTION NO. 4

Council—60 Year Awards

WHEREAS, there are numerous physicians who achieve fifty (50) years of active practice, and

WHEREAS, this anniversary is generally commemorated by the local medical society to which he belongs and by the community in which he practices, and

WHEREAS, there are few physicians who achieve 60 years of practice

Be It Resolved that the Kansas Medical Society shall prepare a parchment suitable for framing on which will be placed the seal of the Kansas Medical Society and which will be signed by the president and secretary of the Kansas Medical Society, and

Be It Further Resolved that such parchment shall annually be given to those physicians as they reach their 60th anniversary of practice upon the recommendation of the component medical society to which they belong or upon the recommendation of the Council, and

Be It Further Resolved that such presentation be made at the time of the Annual Banquet.

RESOLUTION NO. 5

Council—Blue Cross Board

WHEREAS, the Blue Cross Board annually requests the Kansas Medical Society to name four (4) physicians on the Blue Cross Board of Trustees, and

WHEREAS, the term of L. W. Reynolds, M.D., Hays, expires this year but he is eligible for re-election for another three-year term, and

WHEREAS, H. Preston Palmer, M.D., Scott City; W. J. Reals, M.D., Wichita, and G. S. Ripley, Jr., M.D., Salina had served two consecutive terms and are not eligible for reappointment

Be It Resolved that Dr. L. W. Reynolds of Hays be appointed for a second three-year term, and

Be It Further Resolved that Dr. L. P. Cawley of Wichita, Dr. L. W. Patzkowsky of Kiowa, and Dr.

Donald Wald of Salina be appointed for a three-year term on the Blue Cross Board of Trustees.

RESOLUTION NO. 6

Council—Governor's Commission on Indigent Health Care

WHEREAS, a special advisory commission to present recommendations on health care for the indigent has been appointed by the Governor of Kansas, and

WHEREAS, he appointed from seven (7) nominations given him by the Kansas Medical Society: Drs. G. E. Burket, Jr. of Kingman, T. P. Butcher of Emporia, J. L. Lattimore of Topeka, and L. R. Pyle of Topeka, and

WHEREAS, these physicians performed a great service to the Medical Society in the preparation of a plan that was approved by the Advisory Commission, and

WHEREAS, this plan was not accepted by the Kansas Legislature

Be It Resolved that the House of Delegates express its gratitude to the four (4) physicians for their efforts, and

Be It Further Resolved that the House of Delegates send an expression to the Governor of the State of Kansas of the willingness of the Kansas Medical Society to continue its efforts to provide the indigent of Kansas with adequate health care, and

Be It Further Resolved that such communication recommend the continued effort of the Advisory Commission to successfully conclude its task.

RESOLUTION NO. 9

Study of Anesthetic Deaths

WHEREAS, during the first eight (8) months of 1960, the Kansas Department of Vital Statistics notes five (5) deaths attributed to anesthesia, and

WHEREAS, the Committee on Maternal Welfare has for some time reviewed maternal deaths with the result that such statistics are improving, therefore

Be It Resolved that the Committee on Anesthesiology be authorized to inaugurate a study on anesthetic deaths in which physicians will be requested to voluntarily cooperate.

RESOLUTION NO. 10

Woman's Auxiliary

Be It Resolved that when it becomes necessary to mobilize opinion on legislation, both national and state, information shall be provided by the Kansas Medical Society to the members of the Woman's Auxiliary suggesting that they individually correspond with their respective legislators or persons involved in the legislative process.

RESOLUTION NO. 11

Child Welfare—Expansion of Crippled Children's Services

WHEREAS, a number of chronic disabling conditions in children, such as deafness, congenital malformation of the esophagus, stomach and intestines, fibrocystic disease of the pancreas and so forth are not currently covered by any state agency, and

WHEREAS, most states have expanded the definition of a crippled child under the Crippled Children's Commission to include more medical conditions, and

WHEREAS, the State Board of Health urges a change in the definition of eligibility under the Crippled Children's Commission

Be It Resolved that the Committee on Child Welfare review services to handicapped children and report its recommendations to the next session of the House of Delegates.

RESOLUTION NO. 12

Committee on Conservation of Eyesight Visual Standards for Drivers' Licenses

WHEREAS, the 1961 Legislature introduced a bill to require an applicant for drivers' licenses of motor vehicles to present evidence of visual fitness after the ages 40, 50, 60 and every two (2) years after age 65, and

WHEREAS, this bill did not pass, and

WHEREAS, there appears to be legislative concern with this problem, and

WHEREAS, vehicle accidents constitute one of the nation's largest unsolved health hazards—with 37,000 or more people killed outright, approximately 400,000 permanently physically or mentally impaired in some way, and over one million will be temporarily disabled in the current year, and

WHEREAS, the accident ratio will correlate more closely with records of contact in: (1) adult court, (2) juvenile court, (3) credit bureau ratings, (4) social service agencies, (5) public health clinics, (6) venereal disease clinics, and (7) blood alcohol content, then with visual acuity, and

WHEREAS, it is the opinion of the ophthalmologists of Kansas that visual acuity is only one standard upon which driving efficiency should be judged, therefore

Be It Resolved that the Committee on Conservation of Eyesight, with the cooperation of the Section on E.E.N.T., be authorized to study and recommend to the next session of the House of Delegates an outline of satisfactory visual acuity standards that can be presented to the 1963 session of the Kansas Legislature for enactment, and

Be It Further Resolved that the House of Delegates recommend to the Committee on Mental Health, the

Committee on Safety, and whatever other committees might appropriately do so, to study other physical, mental and emotional standards that might be included in an examination to be required of drivers, and

Be It Further Resolved that all such recommendations be combined, after approval by the House of Delegates next year, into one recommended action for the 1963 Kansas Legislature.

RESOLUTION NO. 13

Committee on Conservation of Eyesight— Glaucoma Surveys

WHEREAS, the Division of Services for the Blind under the State Board of Social Welfare with the approval and cooperation of the Committee on Conservation of Eyesight has, over a number of years, conducted glaucoma surveys to establish the incidence of glaucoma, and

WHEREAS, such surveys have established a trend as to the incidence of glaucoma in the general populace to the extent that further glaucoma surveys will not be required, and

WHEREAS, the Committee on the Conservation of Eyesight has been and continues to be available to the Department of Social Welfare, Division of Services for the Blind, for medical consultation and care of eye problems that come before the Division for the Blind, and

WHEREAS, eye examinations carried out at glaucoma surveys are incomplete and could be carried out more efficiently in the offices of medical doctors, therefore

Be It Resolved that the House of Delegates of this Session approve the recommendation of the Committee that these surveys under the auspices of the Committee on the Conservation of Eyesight be terminated, and

Be It Further Resolved that physicians be encouraged to include the taking of eye tension as a part of the physical examination.

RESOLUTION NO. 14

Committee on Constitution and Rules

Therefore Be It Resolved: That By-Laws Chapter V, Section 3, Page 14 be amended to read:

Section 3. Each component society having made its annual report and paid its assessments as provided in this Constitution and By-Laws shall elect ONE DELEGATE (1) and ONE ALTERNATE (1) to the House of Delegates for each TWENTY (20) MEMBERS and major fraction thereof, PROVIDED, that each component single county society shall be entitled to at least one dele-

gate and one alternate, and Provided further that each COMPONENT MULTI-COUNTY Society having membership less than 75 shall be entitled to elect one delegate and one alternate, PLUS one delegate and one alternate for each TEN (10) members and major fraction thereof on the membership roll. It shall be the duty of the secretary of each component society to send a list of the delegates and alternates to the Executive Secretary of this Society at least thirty days prior to each session.

RESOLUTION NO. 15

Committee on Constitution and Rules

Be It Resolved: That By-Laws Chapter VI, Section 1, Line 13, Page 17 be amended as follows:

Strike out the word "and" before the words "delegate elect" and insert a comma (,) and the words "and an alternate delegate" and further in Lines 15 and 16 strike out the words "and alternate delegate to the American Medical Association."

RESOLUTION NO. 16

Committee on Constitution and Rules

Be It Resolved: That By-Laws Chapter VIII, Section 15, Page 23 be amended to read:

Section 15. The EXECUTIVE SECRETARY shall notify each component society of each Councilor District at least three months in advance of the annual session at which a new councilor term begins for that district. A meeting of the component societies of a district may be held or a poll taken prior to the annual session to determine a Councilor to be recommended for the new term, and the Councilor shall be elected by a caucus of the delegates present from the several component societies of the district as required by the Constitution (Article IX, Section 3). The results of the caucus shall be reported to the House of Delegates along with the names of the newly elected officers.

RESOLUTION NO. 17

Committee on Constitution and Rules

Therefore Be It Resolved: That By-Laws Chapter V, Section 1, last line on page 13, and first line on page 14, shall be amended to read:

"Notice of such meeting shall be mailed to each component society at LEAST TEN (10) DAYS in advance of the date selected and shall state time, place, and purpose of the meeting."

RESOLUTION NO. 20**Committee on Constitution and Rules****AMENDMENT NO. 16**

Be It Resolved: That By-Laws Chapter XI, Section 5, on page 28, be amended by addition of the following paragraph:

"No contract, debt, or obligation, oral or written, shall be incurred in the name of the Kansas Medical Society by any officer, committee, member, employee or agent unless or until the same has been previously authorized by vote of the House of Delegates, or the Council, or the Executive Committee, and no such authorization shall extend beyond the next Annual Meeting of the House of Delegates."

RESOLUTION NO. 21**Committee on Control of Cancer—
Cancer Registry**

WHEREAS, the Kansas State Board of Health has discontinued the sponsorship of the Kansas Cancer Registry, and

WHEREAS, the progress made in cancer control can best be demonstrated through statewide statistics and records, and

WHEREAS, individual registries are now maintained in hospitals so as to meet the requirements of the American College of Surgeons, and

WHEREAS, the Committee on Control of Cancer of the Kansas Medical Society and the Medical-Scientific Committee of the American Cancer Society, Kansas Division, strongly urge that the State Cancer Registry be reinstated and maintained by the Kansas State Board of Health, therefore

Be It Resolved that the Kansas Medical Society petition the State Board of Health to reinstate its statewide Cancer Registry.

RESOLUTION NO. 23**Committee on Control of Cancer**

WHEREAS, the Committee on Control of Cancer of the Kansas Medical Society met on Sunday, September 11, 1960, in the City of Hutchinson, and recommended that component medical societies endorse the ten-point cytology program, preparing for the ever increasing requests of patients for the "Pap" smear, and

WHEREAS, it is generally agreed that uterine cancer is a controllable disease and that the appalling loss of life and subsequent financial costs could be eliminated or significantly decreased by preventive measures, including regular medical supervision and repeated cervical smears, and

WHEREAS, there has been a growing and continuous public education program concerning the value of the "Pap" smear, and

WHEREAS, this public demand will necessitate the physicians of Kansas meeting this challenge, and

WHEREAS, the General Federation of Women's Clubs in America, of which there are several thousand members in Kansas, has made it their project in 1961 to encourage every member to have a physical examination, including a "Pap" smear, and

WHEREAS, it is essential that practicing physicians be in agreement and aware of the basic procedures necessary for conducting such examinations, and

WHEREAS, the essential elements of the ten-point program of the American Cancer Society are, in order: program planning, development of interest among pathologists, education of practicing physicians about cytological technique, the development of laboratory resources if necessary, education and stimulation of the general public, and maintenance of the physician-patient relationship, and

WHEREAS, the University of Kansas Medical Center, as supported by the Public Health Service, is developing a program for education of physicians and training of cytotechnologists, and

WHEREAS, the State Board of Health has offered to initially supply every physician in Kansas with a complete cytological kit, together with a technical pamphlet provided by the Department of Obstetrics and Gynecology of the University of Kansas Medical Center and the Kansas Division of the American Cancer Society, and the Committee on the Control of Cancer, and

WHEREAS, all pathological laboratories in Kansas have been surveyed by both the American Cancer Society and by the State Board of Health, and all have replied that they are now ready and capable of handling a limited increase in pathological examinations of cytological smears, and

WHEREAS, such pathological examinations will be conducted in any qualified laboratory, except the State Board of Health Laboratory, therefore

Be It Resolved that the Kansas Medical Society go on record as endorsing and making itself a part of the cooperative program of the Kansas Division of the American Cancer Society, the State Board of Health and the University of Kansas Medical Center to increase knowledge and utilization of the cytological smear technique for cervical cancer through educational means, and

Be It Further Resolved that the several county medical societies be urged to join in the above effort by bringing the above program to the attention of their members by special programs utilizing the services of local pathologists, panels of informed physicians from the Society's territory, the staff members

of the University of Kansas Medical Center and the Public and Professional Education Committee of the American Cancer Society and by encouraging public education in their respective territories through use of films and other mass media technique, and

Be It Further Resolved that the Kansas Medical Society in cooperation with the State Board of Health and the Kansas Division of the American Cancer Society supply Kansas physicians with a complete cytological kit which would include a technical pamphlet prepared by the Department of Obstetrics and Gynecology in cooperation with the Department of Pathology of the University of Kansas Medical Center, and the Kansas Division of the American Cancer Society and the Committee on Control of Cancer of the Kansas Medical Society.

RESOLUTION NO. 24

Committee on Control of Cancer

Be It Resolved that the Kansas Medical Society endorse the Teen Age Smoking and Lung Cancer program in the Kansas schools.

RESOLUTION NO. 25

Committee on Control of Tuberculosis

WHEREAS, the Kansas State Board of Health has received a sum of money (\$40,000) by an act of the legislature for the purpose of establishing out-patient clinics for the treatment of tuberculosis, and

WHEREAS, the Committee on Control of Tuberculosis approved this plan in principle, therefore

Be It Resolved that the Kansas Medical Society approve the establishment of tuberculosis out-patient clinics under the supervision of the State Board of Health in a manner acceptable to the Committee on Control of Tuberculosis and in a manner acceptable to each county medical society in whose area a clinic may be established.

RESOLUTION NO. 26

Committee on Control of Tuberculosis

WHEREAS, no concerted effort has been made to conduct tuberculin testing of school age children and school personnel on a county-wide basis, and

WHEREAS, the American School Health Association, with the endorsement of the National Tuberculosis Association has initiated a program known as the School Certification Program designed to promote county-wide tuberculin testing, and

WHEREAS, the Kansas Tuberculosis and Health Association has successfully promoted county-wide school testing programs in several counties, and

WHEREAS, a school tuberculin testing program alone cannot be considered a case-finding program

Be It Resolved that the Kansas Medical Society endorse the National School Certification Program for implementing under the joint sponsorship of the Kansas Medical Society, the State Board of Health and the Kansas Tuberculosis and Health Association and with the approval of the local county medical society.

RESOLUTION NO. 27

Committee on Control of Tuberculosis

WHEREAS, the State Legislature in 1953 established a Financial Council for the purpose of regulating professional salaries, and

WHEREAS, the fact that professional salaries under Civil Service, other than professional persons in the field of mental health, are not commensurate with salaries for like positions in other states and professional fields, and

WHEREAS, three (3) well qualified professional people employed as staff personnel at the Southeast Kansas Tuberculosis Hospital at Chanute, Kansas have recently left Kansas for similar employment in other states leaving a serious staff shortage, and

WHEREAS, the Committee on Control of Tuberculosis is greatly concerned that unless this type of loss is halted serious difficulty will befall the tuberculosis control program in Kansas, therefore

Be It Resolved that the Kansas Medical Society endorse its Committee recommendation that the quality of the physician staff members of the Tuberculosis Sanatorium be upgraded as a public service by making the salary scale and fringe benefits for state institutional physicians commensurate with pay scales for similar positions in other states and with the psychiatric salary scales now used in Kansas.

RESOLUTION NO. 28

Committee on Control of Tuberculosis

WHEREAS, on February 25, 1961 the Public Health Laboratory announced the discontinuation of DIRECT MICROSCOPIC EXAMINATIONS FOR TUBERCLE BACILLI because of a shortage of laboratory staff, and

WHEREAS, the Committee on Control of Tuberculosis views this decision with much concern

Be It Resolved that the Kansas Medical Society request the Public Health Laboratory to reconsider this action in the hope that direct microscopic examinations for tubercle bacilli can be continued as a public health measure.

RESOLUTION NO. 29

The Defense Board

WHEREAS, The Kansas Supreme Court made a decision on the general subject of informed consent, and

WHEREAS, this decision might increase the legal responsibility of a physician in his practice, and

WHEREAS, the Defense Board has studied this problem with the attorney for the Kansas Medical Society, and

WHEREAS, the JOURNAL OF THE KANSAS MEDICAL SOCIETY, the issue of January, 1961, was devoted to information on ways in which a physician could defend himself in his practice against the possibility of lawsuits

Be It Resolved that the House of Delegates again call attention to the usefulness of a signed consent which contains the type of information presented in the sample published in the January issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY on Page 22, and

Be It Further Resolved that the House of Delegates recommend each physician use a form of this type in his practice.

RESOLUTION NO. 30

Executive Committee—Addressograph Service

WHEREAS, the Executive Office is frequently asked to supply the use of its mailing list, and

WHEREAS, the Executive Committee prepared the following guide

Be It Resolved that when the membership addressograph plates are to be used, the following conditions shall prevail:

1. Any member may use the mailing services of the Society at cost, upon request.
2. Individuals or companies advertising in the

JOURNAL OF THE KANSAS MEDICAL SOCIETY may use the mailing service of the Society at cost.

3. Individuals or companies who appear to the Executive Office and the president to offer services of benefit and interest to the profession, if they have a direct relationship to the practice of medicine and are reputable in their intent, may use the mailing services of the Society at cost.

4. All individuals or companies having a commercial interest, who appear to be reputable and whose literature seems to the Executive Office and to the president to be of value to the profession, may have envelopes addressed to the Society at a cost of \$15.00 per membership mailing.

5. All other requests shall be denied.

RESOLUTION NO. 31

Committee on Fee Schedules

WHEREAS, the House of Delegates on February 12, 1961, in a special meeting held at Emporia adopted a revised Relative Value Scale which is currently in the process of being printed, and

WHEREAS, the chairman of the Committee on Fee Schedules, W. J. Reals, M.D. of Wichita, has prepared an introduction to appear in this printing which has been made available to the House of Delegates, therefore

Be It Resolved that wherever it becomes necessary to use the Kansas Relative Value Scale the second revision, as adopted by the House of Delegates on February 12, 1961, shall be used.

(*Editor's Note:* The report of the 1961 meeting of the House of Delegates will be concluded in the July issue of the JOURNAL.)

KANSAS CITY

103rd Annual Convention

April 30, May 1, 2, 1962



Blue Shield

Blue Shield Board

Dr. James B. Fisher, Wichita, was re-elected President of Kansas Blue Shield at the annual meeting of the Board of Directors in Wichita, Sunday, April 30. The spring meeting of the Blue Shield Board is held each year on the Sunday preceding the annual meeting of the Kansas Medical Society.

Dr. Fisher has been a member of the Blue Shield Board since May, 1954, and was first elected president in 1960, succeeding Dr. Edward Ryan, Emporia. He previously served as first and second vice-president of the Board.

Dr. Fisher was graduated from the University of Kansas School of Medicine in 1936, and since that time has practiced his profession in Wichita, where he is associated with the Wichita Clinic. He is a fellow of the College of Physicians, and certified by the Board of Internal Medicine.

All other officers were also re-elected at the April 30 meeting. They include Dr. E. Burke Scagnelli, Dodge City, 1st vice-president; Dr. Robert K. Purves, Wichita, 2nd vice-president, and Dr. Charles S. Joss, Topeka, secretary.

Councilor Districts Represented

One physician from each of the seventeen Medical Councilor Districts serves on the Board. New physician trustees elected include Dr. R. J. Maxfield, Garden City and Dr. E. R. Williams, Dodge City. Re-elected trustees include Dr. Thomas R. Hamilton, Kansas City; Dr. Pratt Irby, Fort Scott; and Dr. V. R. Moorman, Hutchinson.

Physician trustees who remain in office for at least another year include Dr. David G. Laury, Ottawa; Dr. Thomas G. Duckett, Hiawatha; Dr. R. K. Wallace, Manhattan; Dr. C. M. Lessenden, Jr., Topeka;

Dr. W. H. Walker, Eskridge; Dr. H. J. Brown, Winfield; Dr. L. S. Nelson, Jr., Salina; Dr. Charles M. White, Wichita; Dr. James L. McGovern, Wellington; Dr. Norman Hull, Hays; Dr. Anol Beahm, Great Bend, and Dr. Carl C. Gunter, Quinter.

Member Representation

Four representatives of the Blue Shield membership, elected by the Blue Cross-Blue Shield State Member Council, also serve on the Board as do two other lay members appointed by the Governor of Kansas.

Stanley Winchester of Hutchinson is the new member representative on the Board elected by the State Members' Committee. Other members representatives include W. Laird Dean, Topeka; Mrs. J. C. McKinney, Hartford, and J. D. Smerchek, Manhattan, chairman of the State Members' Committee.

The president and president-elect of the Kansas Medical Society are ex-officio members of the Blue Shield Board.

**USE YOUR MEDICAL
LIBRARIES**

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HAPPY TO ASSIST YOU**

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011, ex. 297

History of Medicine Monographs Available in the Library

Montague, J. F. Taking the doctor's pulse, Lippincott. 1928.
Morgan, M. C. Doctors to the world. Viking Press. 1958.
Packard, F. R. The history of medicine in the U. S. Lippincott. 1901.
Park, R. An epitome of the history of medicine. F. A. Davis. 1902.
Peters, H. Pictorial history of ancient pharmacy. Engelhard & Co. 1889.
Rapport, S. B. Great adventures in medicine. Dial Press. 1952.
Riesman, D. The story of medicine in the middle ages. Hoeber. 1935.
Sigerist, H. E. Medicine and human welfare. Oxford Univ. Press. 1941.
Tobey, J. Riders of the plagues. Scribner's Sons. 1930.
Turley, L. History of the philosophy of medicine. U. of Oklahoma Press.
Turner, E. Call the doctor; a social history of medical men. St. Martin's Press. 1959.
Top, F. The history of American epidemiology. Mosby. 1952.
Woglom, W. Discoverers for medicine. Yale Univ. Press. 1949.
Wolf, G. D. The physician's business. J. B. Lippincott Co. 1938.
Ross, Ishbel. Child of destiny. Life story of the first woman doctor. Harper. 1949.
Crile, G. W. An autobiography. Lippincott. 1947.
Crumbine, S. J. Frontier doctor. Dorrance. 1948.
Fulton, J. F. Harvey Cushing, a biography. Thomas. 1946.
Ludovici, L. J. Fleming, discoverer of penicillin. 1952.
Jones, E. The life and work of Sigmund Freud. Basic Books. 3 Volumes.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

Koch, Harriett. Militant angel. Macmillan. 1951.
Goss, C. M. A brief account of Henry Gray, and his anatomy. Lea & Febiger. 1959.
Pawling, J. R. Dr. Samuel Guthrie, discoverer of chloroform. Brewster Press. 1947.
Heiser, V. G. An American doctor's odyssey. Norton & Co. 1936.
Hertzler, A. E. The doctor and his patients. Harper. 1940.
Goodwin, G. M. Russell A. Hibbs, pioneer in orthopedic surgery. Columbia Univ. 1935.
Jackson, C. The life of Chevalier Jackson. Macmillan Co. 1938.
Truax, R. The Doctors Jacobi. Little, Brown. 1952.
Magnuson, P. B. Ring the night bell. Little, Brown. 1960.
Martin, F. H. The joy of living; an autobiography. Doran & Co. 1933.
Martin, F. H. Fifty years of medicine & surgery, autobiographical sketch. Surgical Pub. Co.
Morris, R. T. Fifty years a surgeon. Dutton & Co. 1935.
Vallery-Fadot. Pasteur. Louis Pasteur; a great life in brief. Knoff. 1958.
Truby, A. E. Memoir of Walter Reed. Hoeber. 1943.
Glasser, O. Dr. W. C. Rontgen. 1945.
Sharpe, W. Brain surgeon. Viking Press. 1952.
Shastid, T. H. My second life. Wahr. 1944.
Trudear, E. L. An autobiography. Lea & Febiger. 1916.
Van Hoosen, B. Petticoat surgeon. Pellegrini. 1947.
Flexner, S. William. Henry Welch and the heroic age of American medicine. Viking Press. 1941.
Flexner, J. T. Doctors on horseback. Garden City Pub. Co. 1930.
Lovejoy, Esther. Women doctors of the world. Macmillan. 1957.
Mead, K. C. A history of women in medicine. Hadam Press. 1938.
Rosen, G. 400 years of a doctor's life. Schuman. 1947.
Walker, M. Pioneers of Public Health. Oliver & Boyd. 1930.
Fishbein, M. Doctors at war. Dutton. 1945.
Fishbein, M. Medical writing, the technic and the art. Blakiston. 1948.
Hertzler, A. E. The grounds of an old surgeon's faith. A scientific inquiry into the causes of war. Halstead. 1944.
Rush, B. The selected writings of Benjamin Rush. Philosophical Library. 1947.

(Continued on page 292)



Personalities—IN KANSAS MEDICINE

Dr. John G. Shellito, Wichita, attended the Southwestern Surgical Congress in St. Louis, April 12.

The last session of the 1960-61 Kansas Circuit Course in Postgraduate medical symposia was held in Concordia, April 25 and the subject was "Modern Medicine." Doctors on the program were Charles E. Andrews, M.D., **John T. Brauchi, M.D.**, **William A. Reed, M.D.**, and **Robert W. Weber, M.D.**, all of the Kansas University Medical Center.

Dr. Charles F. Henderson, Parsons, was elected president of the Labette County Medical Society recently. The outgoing president is **Dr. Victor Jackson**, Altamont. **Dr. I. J. Waxse**, Oswego, was elected vice president and **Dr. Everet C. Beaty**, Parsons, secretary-treasurer.

Dr. W. G. Cauble, Wichita, attended the Southwestern Surgical Congress in St. Louis, April 12 where he presented a paper entitled, "Gall Bladder Disease in Patients Over 65."

Dr. Henry S. Blake, Topeka, is new chairman of the board of directors of the National Association of Blue Shield Plans. He was vice chairman.

Dr. F. E. Dillenbeck, El Dorado, attended a meeting the latter part of April in Miami Beach, Fla, at Convention Hall. Over 4,000 doctors from every part of the nation were present for the assembly of the American Academy of General Practice.

Dr. Wirt Warren, Wichita, attended a course in "Clinical Reviews" at the Mayo Clinic, Rochester, April 10-12.

Dr. O. L. Hamm, Gardner, who has been a phy-

sician at the Gardner Community Medical Center the past year, and who has been keeping a part-time office in Spring Hill, has resigned, effective May 1, to return as a medical missionary to West Pakistan.

Dr. Charles Haughey, Manhattan, has been named director of the Salina-Saline County Health Department. Dr. Haughey, who has been Riley County health officer for about a year, will begin his new duties about July 1. Dr. Haughey succeeds **Dr. Howard Wagenblast**, Salina, who resigned last August to enter private practice.

Dr. Robert L. Kasha, Wichita, has been elected a member of the American College of Abdominal Surgery.

Dr. Robert D. Boles, Dodge City, vice-president of the Ford County Mental Health Association, was one of the speakers at the Mental Health Forum, Tuesday evening, April 18. His subject was "Understanding Our Community Needs."

Dr. Funston J. Eckdall, Emporia, attended a meeting of the Association of Railway Surgeons of America which was held in Chicago in mid-April. Dr. Eckdall is the vice president of the association.

Dr. Henry O. Marsh, orthopedist at the Wichita Clinic, addressed members of the Greenwood County Medical Society at their annual meeting in Eureka on April 27.

A postgraduate program on cardiovascular disease was held in Arkansas City on April 27. This was the final session in a series of six medical symposiums offered during the past six months by the University of Kansas School of Medicine, the Kansas Medical

Society, the Kansas State Board of Health, and the Kansas Academy of General Practice, working in cooperation with local county medical societies.

The evening was devoted to a roundtable discussion with four faculty members from the KU School of Medicine participating. They are: **Dr. Antoni M. Diehl**, associate professor of pediatrics; **Dr. Marvin Dunn**, associate in medicine; **Dr. Creighton A. Hardin**, associate professor of surgery; and **Dr. Howard P. Fink**, associate professor of pathology.

At the annual banquet, **Dr. Cyril V. Blank**, Pratt, presented a check of \$14,775, from AMEF, to **Dr. C. Arden Miller**, Kansas City, to be used as needed for the University of Kansas.

Donations from Kansas to AMEF totaled about \$12,500, of this the Woman's Auxiliary accounts for \$2,500, non-medical sources accounts for another \$1,000. This leaves the efforts of the Kansas Doctors amounting to \$9,000, from 1800 members or an average of \$5.00 per member.

Surely we can do better than this. Instruct your secretary to send a check to AMEF now.

The appointment of **Dr. Hilbert P. Jubelt** as director of the Kansas State University student health service, effective July 1, was announced recently by President James A. McCain. Dr. Jubelt, a practicing Manhattan physician since 1949, will succeed **Dr. B. W. Lafene**.

The American College of Obstetricians and Gynecologists inducted 473 new Fellows during a formal ceremony at its Tenth Anniversary Meeting in Bal Harbour, Fla., April 20-28. Kansas physicians are **Dr. Henry Aldis**, Fort Scott; **Dr. James G. Lee, Jr.**, Kansas City; and **Dr. Charles P. McCoy**, Wichita.

From the Stacks

(Continued from page 290)

Anatomy

Camp, S. H. Anatomical studies for physicians and surgeons. Camp & Co. 1936.

Cates, H. A. Primary anatomy. Williams & Wilkins. 1955.

Clarke, C. D. Molding and casting. Lucas & Co. 1938.

Gray, Henry. Anatomy of the human body. Lea & Febiger. 1959.

Keeney, A. H. Chronology of ophthalmic development. Thomas. 1951.

Infectious Hepatitis In Pregnancy

(Continued from page 255)

fares well. As yet, no evidence exists to substantiate worry over organogenetic marking of the child. Transplacental transmission of the virus of hepatitis may occur, and transmission of the infection to the child as it traverses the birth canal is possible, but infrequently does the infant get the disease.

Encountering only nine cases of infectious hepatitis in a total of 16,546 obstetrical deliveries in a ten-year period in our hospital suggests the relative infrequency of the problem, but also may indicate that many cases are probably subclinical or missed.

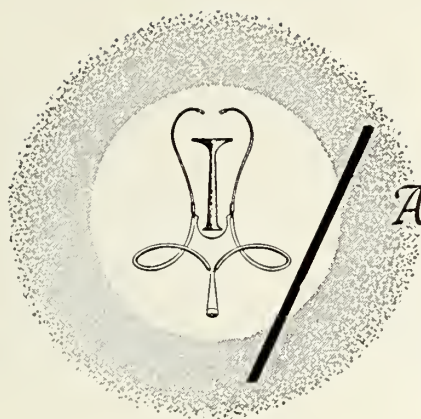
References

1. Ingerslev, Magens., Telium, Gunnar: Biopsy Studies on the Liver in Pregnancy. *Acta Obst. et. Gynec.*, 25:352-360, 1946.
2. Munnell, Equinn W., Taylor, Howard C., Jr.: Liver Blood Flow in Pregnancy. *Jour. Clin. Invest.* 26:952-956, 1947.
3. Zondek, B., Bromberg, Y. M.: Infectious Hepatitis in Pregnancy. *J. Mt. Sinai Hosp.* 14:222-243, 1947.
4. Hsia, D. Y. Y., Taylor, R. G., and Gellio, S. S.: Long-Term Follow-up Study on Infectious Hepatitis During Pregnancy. *J. Pediat.* 41:13-17, 1952.
5. Stokes, J., Wolman, I. J., Blanchard, M. C., and Farquhar, J. D.: Viral Hepatitis in Newborn: Clinical Features, Epidemiology, and Pathology. *Am. J. Dis. Child*, 82:213-216.
6. Svanborg, Alvar, Ahlsson, Stig.: Recurrent Jaundice of Pregnancy—A Clinical Study of Twenty-Two Cases. *Am. Jour. Med.*, 28:40-49, July 1959.
7. Ingerslev, Magens., Telium, Gunnar: Jaundice During Pregnancy. *Acta Obstet. Gynec. Scand.*, 31:74-89, 1951-52.
8. Peritz, A., Paldi, E., Brandstaedter, S., Barzelai, D.: Infectious Hepatitis in Pregnancy. *Obst. & Gynec.* 14:4,435-4,442, Oct. 1959.
9. Mickal, Abe: Infectious Hepatitis in Pregnancy. *Am. J. Obst. & Gynec.* 62:2,409-2,414, Aug. 1951.
10. Gregg, N. McA.: Congenital Cataracts Following German Measles in the Mother. *Tr. Ophth. Soc. Australia*, 3:35-46, 1941.
11. Siegel, Morris, Greenberg, Morris: Virus Diseases in Pregnancy and Their Effects on the Fetus. *Am. Jour. Obst. & Gynec.*, 77:620-627, Mar. 1959.
12. Mansell, R. V.: Infectious Hepatitis in First Trimester of Pregnancy and Its Effect on the Fetus. *Am. J. Obst. & Gynec.* 69:1136, 1955.

Editor's note: This article was submitted to The JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, The JOURNAL was able to publish only half of the articles submitted.

The remaining papers will appear in the upcoming issues.

The JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

A thirty-eight day Medical Study Cruise to the West Indies and South America for the 15th General Assembly of The World Medical Association will set sail from New York on August 25 or from Port Everglades (Fla.) on August 27, on Moore-McCormack Lines air-conditioned SS *Brasil*. Further information attainable from: U. S. Committee, Inc., The World Medical Association, 10 Columbus Circle, New York 19, New York.

The University of Illinois College of Medicine Department of Otolaryngology will offer an intensive postgraduate basic and clinical program under the direction of Doctor Emanuel M. Skolnik. This Assembly for practicing otolaryngologists offers a compact program of one week of daytime and evening sessions. It is designed to bring to specialists a wide variety of current advances in management, therapy and philosophies. Review of basic morphologic features under the direction of Doctor Maurice F. Snitman and Doctor Frederic J. Pollock is also included, and will feature laboratory demonstrations, dissection and prosection, all augmented by visual aids.

Interested physicians should write direct to the Department of Otolaryngology, University of Illinois College of Medicine, 1835 West Polk Street, Chicago 12, Illinois.

The Council on Postgraduate Medical Education of the American College of Chest Physicians will present the following postgraduate courses during 1961:

Cardiopulmonary Problems in Children
Brown Hotel, Denver, Colorado, July 24-28

Industrial Chest Diseases
Warwick Hotel, Philadelphia, September 25-29

Clinical Cardiopulmonary Physiology
Sheraton-Chicago Hotel, Chicago, October 23-27

Recent Advances in the Diagnosis and Treatment of Heart and Lung Diseases
Park Sheraton Hotel, New York City, November 13-17

Recent Advances in Diseases of the Chest
Statler-Hilton Hotel, Los Angeles, December 4-8

Further information may be obtained by writing the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

A Five-day Postgraduate Course in Pediatrics, Clinical and Research Advances in Pediatrics, and Child Guidance Problems, is designed specifically for the practicing pediatrician. Emphasis will be given to the newer developments in pediatrics and its many branches and in related fields. Physicians may register for the entire course, August 21-25, 1961, or for any three consecutive days. This entire course will be held at the Stanley Hotel in Estes Park, Colorado. Further information available from the University of Colorado Medical Center, Office of Postgraduate Medical Education, 4200 East Ninth Avenue, Denver 20, Colorado.

Science helps us to understand many phases of the material and dynamic sides of life, but the highest reaches of music come thrillingly close to the central core and essence of life itself.—*Leopold Stokowski*

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F.A.C.P. Regional Meeting

*Abstracts of papers presented at the Regional Meeting
of American College of Physicians
at Topeka on March 3, 1961*

THE TRADITIONAL CONCEPT OF MENTAL DISEASE

W. C. Goodpasture, M.D., Wichita

Traditionally Man has felt that insights into life are necessary if he is to escape despair, that life will catch up with him unless he learns to live it in the right way, in a word he will become mentally ill. The insights necessary seem to me to be as follows:

1. Personal denial is a reality. Knowledge works but is in short supply. Power is tempting but is no substitute for knowledge. Can't force what is not known.

2. Awareness of possible personal denial without knowledge of how to meet it is responsible for the nervous crisis.

3. The nervous crisis can be met in two ways.

a. Refusal to accept personal denial—more and more frantic appealing and defying, hoping that power can win for him, becoming mentally sicker and sicker until tragedy befalls him unless he can stop and—

b. Accept personal denial—patiently continuing to put hope in acquiring knowledge, remaining stable and mentally healthy.

4. Understanding the nature of the person helps make the correct choice when confronted with a nervous crisis.

a. Personal wishes are only personal, never correct, never incorrect.

b. The personal evaluation of personal wishes, though personal, is also correct or else it is incorrect.

c. Man can be denied the fulfillment of a personal wish but he cannot be denied the fulfillment of his personal evaluation. This occurs as the evaluation is made. With understanding our will becomes free to choose the correct evaluation and the constructive way of dealing with the nervous crisis.

5. A case report illustrating the resolution of a nervous crisis is included.

CONNECTIVE TISSUE CHANGES IN PULMONARY DISEASES

Martin FitzPatrick, M.D., Kansas City*

In recent years some biochemical studies have been conducted on the fibrous elements of connective tissue of several organ systems. Our studies have dealt with the elastic fibers of lung and aorta of various species, and in the normal human subject. More recently studies have been conducted to define the amino acid composition of pulmonary elastin, both in the normal human subject, and in the presence of various diseases.

The mode of extraction of elastic fibers from pulmonary connective tissue can cause important changes in amino acid composition. It has been shown that alkaline digestion reduces the amount of serine, threonine, methionine, and arginine. Histidine, aspartic acid and glutamic acid are also found in reduced quantities in elastic fibers isolated by alkaline digestion.

Preliminary studies disclose no significant alteration in amino acid composition of pulmonary elastin in patients with tuberculosis. Pulmonary emphysema, an important degenerative disease of the lung characterized by loss of elasticity, has been recently considered to be a connective tissue disease. We have found no striking difference in amino acid composition of pulmonary elastin from patients with pulmonary emphysema. In male patients with bronchogenic carcinoma, an abnormal collagen appears to be present, in that it resists complete digestion by the enzyme collagenase. This has not been observed in other diseases or in the normal individual. Further studies concerning the origin and significance of this abnormal collagen are in progress.

* Department of Medicine, University of Kansas School of Medicine.

VANCOMYCIN IN STAPHYLOCOCCAL BACTEREMIA

Robert Weber, M.D., Kansas City*

From 1957 through 1960, hemolytic coagulase positive staphylococci were isolated from quantitative blood cultures in thirty-six patients at the University of Kansas Medical Center. Two or more cultures were positive in thirty-three of these patients with staphylococcal bacteremia. It was observed that the first culture was most likely to be positive if a bacteremia was demonstrated and that all subsequent cultures were also positive until treatment was instituted. Seventeen of these patients were treated with Vancomycin therapy. Eleven of these patients had endocarditis, three had osteomyelitis, two had pneumonia and one had a cavernous sinus thrombosis associated with a septicemia. Seven patients with staphylococcal bacterial endocarditis were successfully treated with Vancomycin therapy. Two patients who had a plastic prosthesis in the heart, following open heart surgery, were treated with Vancomycin and other antibiotic therapy unsuccessfully. One patient with staphylococcal endocarditis had a bacteriologic cure with Vancomycin therapy, but died as result of a ruptured aortic valve. The Vancomycin therapy was effective in treating staphylococcal septicemia when the organism was resistant to penicillin. Thrombophlebitis and chills and fever were common side effects of Vancomycin, but were not severe. The incidence of the side effects was reduced by administering the Vancomycin intravenously in five to ten minutes by syringe. Thrombophlebitis occurred in all patients who received the Vancomycin by continuous intravenous drip. The usual amount of Vancomycin administered was 2 grams daily for 14 to 21 days.

* Assistant Professor of Medicine and Microbiology, University of Kansas School of Medicine.

VISUAL LOSS IN THE OLDER PATIENT: TEMPORAL ARTERITIS

Joseph M. Stein, M.D., Topeka

Two cases of temporal arteritis with amaurosis, bilateral in one and unilateral in the other, were presented. Both of these patients represented diagnostic problems for one or more months before the diagnosis was established and treatment was given. The early symptoms may be only headache and variable visual disturbances. Treatment is symptomatic, with the greatest benefits being obtained from the judicious use of the corticosteroids. The current literature was briefly reviewed. Emphasis was placed on the importance of the preservation of vision in the elderly person to try to prevent a catastrophic disability in persons who otherwise might be quite self-sufficient. Early recognition of the sometimes puzzling syndrome was stressed for this reason.

[This paper is to be published in full in a later issue of the JOURNAL—Ed.]

**THE CLINICAL PICTURE OF SARCOIDOSIS:
A REPORT OF EIGHT PROVED CASES**

Joseph N. Plumer, M.D. and Albert Jackson, M.D., Wadsworth*

The diagnosis of sarcoidosis is still difficult and only awareness will lead one to the correct diagnosis. X-ray of the chest is usually the first clue to awareness of this condition. The diagnosis can be definitely established by biopsy of a lymph node or other organ.

The Kveim reaction, which has many false negatives, is not reliable. It is difficult or impossible to obtain, when needed.

Bone involvement is a late manifestation of the disease, occurring in approximately 15 per cent to 25 per cent of the cases.

Elevated serum calcium is found when there is osteoporosis, which is not always present, and a normal serum calcium does not rule out sarcoidosis. A/C ratio changes and an altered electrophoretic pattern are not always present in the early stages of the disease and, therefore, non-specific.

It is our opinion that sarcoidosis is a hypersensitivity disease.

A differentiation between sarcoid type reaction and systemic sarcoidosis is only quantitative and not justified.

Steroids are the only effective treatment in sarcoidosis and all patients should be treated as soon as diagnosed.

The prognosis is not always benign. Sudden death does occur.

* Wadsworth VA Hospital, Wadsworth, Kansas.

Editor's Note: This paper will be published in THE JOURNAL in its entirety in a subsequent issue.

EOSINOPHILIC GRANULOMA OF THE SKULL: REPORT OF A CASE

W. Graham Calkins, M.D., and Charles E. Brackett, Jr., M.D., Manhattan

A case is reported of a young woman with a single lesion of eosinophilic granuloma of the skull. The lesion invaded the temporal muscle and the dura producing convulsive seizures secondary to brain compression. This case is unique in that it is the only instance in which a convulsive disorder was produced by eosinophilic granuloma. Surgical excision of the lesion was curative. The signs, symptoms, pathology and treatment of eosinophilic granuloma were discussed. The interrelationship between eosinophilic granuloma, Letterer-Siwe disease and Hand-Schuller-Christian disease were elaborated upon, and soft tissue lesions of eosinophilic granuloma were discussed.

FOLIC ACID AND METABOLISM OF THE LIVER DISEASE

Robert T. Manning, M.D., Kansas City*

The appearance of macrocytic anemia in individuals with cirrhosis has been attributed to folic acid deficiency. Such deficiency might conceivably be due to decreased intake, decreased absorption, altered conversion to the active biological folic acid coenzyme, increased inactivation or other causes. In an attempt to assay folic acid deficiency in patients with cirrhosis, the enzymatic determination of formiminoglutamic acid in the urine before and after histidine loading was attempted. Formiminoglutamic acid is a natural metabolite of histidine the degradation of which requires the presence of sufficient quantities of folic acid to act as coenzyme; therefore, deficiencies of folic acid at the functional site may appear indirectly as excretion of increased quantities of formiminoglutamic acid in the urine following histidine loading.

Preliminary studies utilizing this technique of a loading dose of two grams of histidine have indicated that patients with macrocytic anemias and liver disease may be folic acid deficient. Four of six such patients showed an increased excretion of formiminoglutamic acid over their control value and over comparable normal values. Interestingly, one patient with myocarditis showed the most marked elevation of formiminoglutamic acid excretion of any patient so far studied.

* Associate in Medicine, University of Kansas School of Medicine.

ELECTROCARDIOGRAPHIC STUDIES IN CONGENITAL HEART DISEASE

James E. Crockett, M.D.,* and William Hayes, M.D., Kansas City

A detailed analysis has been made of the electrocardiographic findings in patients with congenital heart disease in whom the catheterization diagnoses have been proven by surgery or autopsy.

Right axis deviation and right ventricular hypertrophy were common findings in cyanotic forms of congenital heart disease and were seen typically in certain acyanotic forms such as pulmonary stenosis. The degree of right ventricular hypertrophy and the QRS-T changes were found to vary widely, however. Systolic overloading of the right ventricle was found in a variety of conditions, i.e. pure pulmonary stenosis, tetralogy of Fallot, trilogry of Fallot and transposition of the great vessels, but there were important changes between these groups. In tetralogy of Fallot, for example, in which the ventricular septal defect allows equalization of right and left ventricular pressures, the T wave is rarely inverted beyond V1. In pulmonary stenosis or trilogry of Fallot with intact ventricular septum, the right ventricular pressure often becomes quite high and T wave inversion through V3 is common. This is frequently accompanied by a qR complex in V4R and V1 as contrasted to the slurred upstroke of the R wave in V4R and V1 usually seen in tetralogy of Fallot.

In transposition of the great vessels the right ventricular hypertrophy is quite common and expected, but when left ventricular hypertrophy accompanies, the compensating lesion will be ductus arteriosus or ventricular septal defect.

The ostium secundum type of atrial septal defect is reflected by right axis deviation and right bundle branch block (diastolic or volume overloading of the right ventricle). However, right bundle branch block and left axis deviation of 0 to minus 60 degrees usually indicates an incomplete atrioventricular canal or ostium primum defect while a marked left axis deviation (minus 60 to minus 120 degrees) and right bundle branch block points to a diagnosis of complete AV canal.

Tricuspid atresia was manifested by evidence of left ventricular hypertrophy or an unusual degree of left axis deviation for the age.

Ventricular septal defect in infants and small children was usually accompanied by

biventricular hypertrophy. In older patients, diastolic overloading of the left ventricle was the common finding unless increasing pulmonary vascular resistance led to systolic overloading of the right ventricle. In the usual case of septal defect or ductus arteriosus, the development of pulmonary hypertension eventually produced evidence of systolic overloading of the right ventricle.

Coarctation of the aorta and congenital aortic stenosis resulted in varying degrees of left ventricular hypertrophy, usually of the systolic overloading type.

Truncus arteriosus did not reveal any diagnostic EKG findings.

The usual EKG changes in Ebstein's malformation are large P waves, first degree heart block and right bundle branch block.

Many other detailed observations have been made. These studies have shown that a careful analysis of the EKG in congenital heart disease will produce accurate information regarding the pathologic physiology of the lesion and will permit an accurate diagnosis in many cases.

* Professor of Medicine, University of Kansas School of Medicine.

IODIDE GOITER

David Lukens, M.D., Hutchinson

This report concerns a 36-year-old woman with a lifelong history of asthma who has been taking medication from a Biloxi, Mississippi, clinic, which medication included among other things Potassium Iodide and Fowler's solution. She presented herself complaining of severe constipation and lassitude with easy fatigability. The physical examination revealed signs of advanced hypothyroidism with a thyroid gland symmetrically enlarged about 3 times normal size. BMR was +3. Radioactive iodine uptake study was in the myxedema range. The differential diagnosis included Hashimoto's disease, iodide goiter, and arsenic intoxication. Biopsy of the thyroid revealed a hyperplastic gland. Chemical analysis of the finger and toe nails revealed minute concentration of arsenic. Following discontinuation of asthma medication the patient improved considerably but leveled off still in a hypothyroid range, and treatment with Tri-iodothyronine brought the patient into a euthyroid state, whereupon the gland returned to normal size. Of principal interest in this case is the variation of the physiological response to radioactive iodine, because of the fact that her radioactive iodine uptake remained in the myxedema range following discontinuation of Potassium Iodide ingestion. The aspects of this physiological variation will be discussed.

Editor's Note: This paper will be published in THE JOURNAL in its entirety in a subsequent issue.

PAROXYSMAL NOCTURNAL HEMOGLOBINURIA: SOME CLINICAL OBSERVATIONS

Newman V. Treger, M.D., Topeka

The immunology of hematology has been of considerable interest in recent years, with the breakthroughs provided by Dr. Carl V. Moore, his associates, and others. Paroxysmal nocturnal hemoglobinuria is a rare disease which, with its hemolytic anemia, provides an opportunity for study of some of the lesser understood mechanisms. Here, the chief defect is thought to be in the erythrocyte. In fact, a positive diagnosis cannot be made, except by the demonstration of the characteristic erythrocyte-abnormality. Several hundred cases have been diagnosed and reported in the world's literature. Several therapies have been tried during the seven and a half years of clinical observation in a young matron with paroxysmal nocturnal hemoglobinuria. These observations will be reported, along with summarization of a review of the world's literature.

TECHNIQUES OF INTRAMUSCULAR INJECTION. THE AVOIDANCE OF NEEDLESS PAIN AND MORBIDITY

*Samuel Zelman, M.D., Topeka**

The traditional technique of posterior gluteal intramuscular injection was reviewed, emphasizing the necessity for meticulous care in details if needless pain and morbidity are to be avoided. A questionnaire of nursing practice disclosed remarkable deviation from accurate technique, and revealed a high incidence of needless infliction of pain. Case examples of sciatic neuritis were omitted because of time limitation.

The new Swiss technique utilizing ventral gluteal musculature is free from hazard of injury to large vessels or nerve trunks. In two years' experience, it proved free of morbidity, simple to teach and practice, and almost foolproof of error. It deserves wide adoption.

* Veterans Administration Hospital, Topeka.

[This paper will be published in full in an early issue of *The American Journal of the Medical Sciences*.—Ed.]

CLINICOPATHOLOGICAL CONFERENCE

This was the first KUMC admission for this 68-year-old farmer.

Chief Complaint: Severe pain in the right inguinal region of three weeks duration.

History of Present Illness: The patient was in his usual state of health until three weeks before admission when he developed severe pain in his right inguinal region. The pain radiated into the right testicle, the inner aspect of the right thigh, into the back and the left abdominal region. Associated with the pain was frequency of urination, dysuria, anorexia and fever, but no nausea, vomiting or diarrhea. For two weeks before admission he had noted bright red blood in his stools. For many years he had had a recurrent low abdominal pain associated with constipation and relieved by laxatives. He was afforded some relief from the pain by assuming a sitting position with his legs flexed and drawn toward his chest. About two weeks before admission he had a sudden onset of numbness and weakness of his right arm and leg associated with some mental confusion. One week before admission he was hospitalized elsewhere. He continued to have pain, and he was subsequently sent here for evaluation.

Past History: He had had the usual childhood diseases. Two years before admission here he was hospitalized elsewhere for arthritis. For the past two years he had been taking digitalis which had originally been given to him because of dependent edema. He smoked two packs of cigarettes daily for 54 years, and he had consumed large amounts of alcohol.

Family History: His mother died at age 69 of diabetes mellitus; his father died at age 72 of cancer of the liver. One brother had peptic ulcers; one brother had asthma.

System Review: During the previous winter months he had had severe headaches, dyspnea on exertion, a chronic cough productive of sputum, 3 pillow orthopnea, paroxysmal nocturnal dyspnea and progressive pedal edema. He had also had an unknown amount of weight loss.

Physical Examination: The patient was a well developed, well nourished, white man who was confused and agitated and in acute distress, sitting doubled up in bed and complaining of right inguinal pain. His pulse was 65 and regular; blood pressure, 115/65; temperature, 99°; respiration, 20. His skin and mucous membranes were dry. His tongue was coated, and the pharynx was red. The chest was hyporesonant to percussion, and there was an increase in the antero-posterior diameter. Rales which cleared on coughing were heard in both bases. There was a presystolic gallop rhythm. The abdomen was soft but somewhat tender in the right mid and lower quadrants. The liver was palpated two fingerbreadths below the costal margin and was somewhat tender. Bowel sounds were active. No unusual masses were palpated. There was 2 plus pitting edema of the lower

legs. Rectal examination was negative except for diffuse tenderness. There was questionable left facial weakness and questionable deviation of the tongue to the right.

Laboratory Data: The specific gravity of the urine was 1.025 with trace of albumin, 1-2 hyalin cast, 2-4 pus cells/hpf, reaction PH 5. The hemoglobin was 13.5 gm.; hematocrit, 44. A white count on admission was 18,600 with 73 per cent polys (70 per cent filamented, 3 per cent non-filamented), 20 per cent lymphs; 5 per cent eosinophiles, 2 per cent monocytes. On the third hospital day a white count was 15,830 with 90 per cent polys (69 per cent filamented, 21 non-filamented), 9 per cent lymphocytes, 1 per cent basophiles. A sedimentation rate was 24 mm. in 30 minutes, 25 mm. in 60 minutes. The serology was non-reactive. BUN on admission was 34 mg. per cent; one day before death, 132 mg. per cent. Blood glucose was 95 mg. per cent; sodium, 132 to 141 mEq; potassium, 5.0 on admission, 5.2 on the day before death; chlorides, 94 to 99 mEq. Total proteins were 6.4 gm. per cent; serum albumin, 2.73, globulin, 3.67; lipase, 0.9 units; lucine aminopeptidase, 155; SGOT, 35; SGPT, 18; calcium, 4.9; phosphorous, 1.9. Cholesterol was 120 (59 per cent esters). Bilirubin total was 0.2 (direct 0.1); alkaline phosphatase, 3.7; acid phosphatase, 0.4; thymol turbidity, 11; prothrombin time, 75 per cent; cephalin flocculation, 2. Skin tests for histoplasmin and intermittent Tbc were negative at 48 hrs. A urine culture was negative. Spinal fluid showed protein 30 mg. per cent, 1 Rbc, colloidal gold 0011100000.

Hospital Course: The patient continued to complain of right inguinal pain and maintained a position with his legs flexed and drawn toward his chest. He was placed on a low sodium diet and given digitalis and codeine. On the second hospital day multiple successive generalized convulsions developed but were effectively treated with sedatives and CO₂ inhalations. A lumbar puncture showed an opening pressure of 130 mm. of clear spinal fluid. Following the seizures his temperature was 104.2°. He was given diphenylhydantoin sodium and barbiturates. The abdominal pain continued. On the fourth day he developed abdominal distention and urinary retention necessitating the insertion of a Levine tube and Foley catheter. The next day an exploratory laparotomy was performed after which he ran a septic course with rectal temp. of 102-103°. He was restless and confused. On the second post-operative day he became hypotensive and respiration was labored. Despite antibiotics, intravenous fluids and whole blood transfusions, he became comatose and developed Cheyne-Stokes respiration, and he died at 5:07 p.m. on the seventh hospital day.

Operative Findings: Peri-appendiceal abscess and localized pelvic peritonitis.

Final Diagnosis: Peri-appendiceal abscess and local pelvic peritonitis.

(Editor's Note: This is the first occasion of THE JOURNAL publishing abstracts of the papers presented at a scientific meeting other than meeting of the Kansas Medical Society. It was made possible on this occasion by the efforts of Dr. D. R. Bedford, of Topeka, who was the chairman of the program committee for the meeting. We appreciate his efforts to obtain these abstracts, and hope that they will prove to be useful to our readers.

The Editorial Board would be pleased to obtain similar abstracts of papers presented at other meetings in the state, if those concerned with the meeting would tell us about them.)

Ammonia and Leukemia

Observations on Blood Ammonia in Leukemic Patients

WILLIAM E. LARSEN, M.D.,** *Kansas City*

ROBERT T. MANNING, M.D.* *and*

DISPUTE EXISTS REGARDING the source of the ammonia measurable in blood. That generation of ammonia following shedding of blood may occur has been amply documented, but it has been confirmed that following collection of blood samples the *in vitro* generation of ammonia is negligible for approximately twenty minutes.^{1, 2} We have had occasion to observe four patients in which *in vitro* (and possibly *in vivo*) production of ammonia was markedly altered, producing high measured levels of blood ammonia which did not reflect the true ammonia content of the patients' blood. Two of these patients had chronic myelogenous leukemia and one had chronic lymphatic leukemia. One presented, in addition, rather marked asymptomatic "hypoglycemia."

Case No. 1. K.M., KUMC No. 53-11366.

This 48-year-old white woman was admitted for the third time to the University of Kansas Medical Center on November 3, 1958 with the established diagnosis of chronic myelogenous leukemia. Four weeks prior to admission she had noted the onset of exertional dyspnea and orthopnea. These symptoms gradually increased in severity and were associated with the appearance of pedal edema and swelling of her abdomen. She gained 26 pounds in the five months prior to admission. No fever or chills had been present.

Physical examination revealed a dyspneic, emaciated woman with pitting edema and marked ascites accumulation; blood pressure 104/70; respirations 30. Moist rales and decreased breath sounds were present at both lung bases, and a grade II systolic murmur was present over the precordium. The liver was palpable 6 fingerbreadths below the right costal margin. The spleen was surgically absent.

On November 4, 1958 a blood sugar was reported as 5 mg. per cent, at which time the patient had no symptoms of hypoglycemia. This was repeated on November 5, 1958 with sodium fluoride as the anticoagulant and reported as 58 mg. per cent. On November 13, 1958 the blood ammonia was noted to be 310 mcg. per cent (N-70-130), and on November 14, 1958 it was 1,100 mcg. per cent. An

electroencephalogram on November 13, 1958 was normal. No manifestations of ammonia intoxication were apparent.

The studies detailed below were carried out on November 18, 1958, at which time her total Wbc. was 192,000 with 73 polys (12 nonfilamented), 2 lymphocytes, 6 eosinophils, 4 basophils, 3 metamyelocytes and 12 myelocytes. Platelets were 78,000; hemoglobin 10 Gm. per cent; bromosulphthalein 11 per cent in 45 minutes. SGOT was 10; total serum bilirubin 0.2, direct 0.1; alkaline phosphatase 4.7 mM. units; cepalin cholesterol flocculation negative; thymol turbidity 2 units; serum albumin 2.82 Gm. per cent, globulin 2.89 Gm. per cent; total cholesterol 196 mg. per cent, esters 56 per cent.

Three patients with leukemia (two with chronic myelogenous, one with chronic lymphatic) are reported who showed high leukocyte counts, high blood ammonias and low blood sugars on routine laboratory examination. Studies are reported showing a rapid increase in ammonia content and lowering of glucose in the blood on standing for brief periods of time. This phenomenon is believed to be due to the metabolic activity of the increased white cell mass. Its significance is discussed.

Medication included chlorothiazide (1 Gm. daily) from November 5, 1958 to November 11, 1958, and 6-mercaptopurine (150 mg. daily) from November 12, 1958 to November 19, 1958, and 100 mg. on November 20, 1958 to November 21, 1958.

She was discharged on November 21, 1958 (moderately improved), and with a weight loss of 19 pounds.

Case No. 2. E.W., KUMC No. 58-2840.

This 79-year-old white woman was first hospitalized in February, 1958, at which time a carcinoma of the hepatic flexure was surgically removed. No metastases were found.

She did well until three months prior to admis-

* Associate in Medicine, University of Kansas School of Medicine.

** Assistant Professor of Medicine, University of Kansas School of Medicine.

sion, when she noted the onset of easy fatigue and tiredness. These symptoms increased in severity, and she developed anorexia and nausea but no vomiting or diarrhea.

She was admitted to the University of Kansas Medical Center for the second time on June 27, 1960, at which time examination revealed a frail woman who appeared chronically ill. Blood pressure was 140/60; pulse, 78. Grade II arteriosclerotic retinopathy was present. A few moist rales were noted in both bases and a grade II systolic ejection murmur was audible. Abdominal examination revealed the liver palpable 3 fingerbreadths below the right costal margin and the spleen was palpable 4 fingerbreadths below the left costal margin. No other gross abnormalities were noted.

The initial blood count revealed 337,000 Wbc. with 43 polymorphonuclears (21 non-filamented), 1 eosinophil, 1 basophil, 24 metamyelocytes, 28 myelocytes and 3 blast forms. Platelets were 464,000; hemoglobin, 7.7 Gm. Total serum bilirubin was 0.4, direct, 0.1; alkaline phosphatase, 1.3 mM. units; cephalin cholesterol flocculation negative; thymol turbidity, 5; serum albumin 3.30; globulin 7.01; total cholesterol, 129; ester, 59 per cent. BMR was +27 per cent. Bone marrow examination showed findings diagnostic of chronic myelogenous leukemia.

On July 5, 1960 a blood ammonia was 386 mcg./100 ml.; no symptoms or signs of ammonia intoxication were present. The studies reported below were done on July 7, 1960. She was started on therapy on July 7, 1960 and was discharged on July 9, 1960.

This was the first admission for this 45-year-old man, who complained of tiredness and weakness of three weeks' duration. He had had a 30-pound weight loss in the preceding four months, and had had frequent upper respiratory infections for three years before admission.

The patient was a well-developed, well-nourished man who did not appear ill. His blood pressure was 150/95. There were palpable cervical nodes, mucosal pallor and a thyroglossal cyst. Chest and cardiac examination revealed a grade I basal systolic murmur. The liver was felt 3 fingerbreadths below the right costal margin; the spleen was enlarged to the iliac crest.

The admission laboratory examination showed a Wbc. of 416,000, 95 per cent lymphocytes; platelets were 114,000; hemoglobin, 7.4 Gm. Bromsulphthalein retention was 10 per cent. Total serum bilirubin was 0.5, direct 0.1. Alkaline phosphatase was 1.9 mM. units; total protein 7.10; serum albumin 4.02; globulin 3.08; cephalin cholesterol flocculation 14; thymol turbidity 12 units. Total cholesterol was 135 mg. per cent, esters 70 per cent. Bone marrow revealed findings diagnostic of chronic lymphatic leukemia.

The laboratory findings noted in Figure 1 were done on the fourth hospital day. The patient was not receiving any medication.

Methods

Blood was obtained from each patient and an aliquot immediately placed in cold trichloroacetic acid and sodium fluoride to stop enzymatic action and glycolysis. The remainder of the sample was placed in tubes with sodium citrate (Cases 2 and 3) or heparin (Case 1) as anticoagulant, and aliquots taken at intervals for determination of ammonia and glucose.

Ammonia was determined by Conway's method, using the TCA filtrates. Glucose was determined in Case 1 by Somogyi's method and in Cases 2 and 3 by the use of "Glucostat."³

Results

The ammonia and glucose values are shown in Figure 1.

Discussion

The clinical picture of "low blood glucose," "high blood ammonia" and absent associated symptomatology suggests that the chemical alterations measured result from the *in vitro* metabolic activity of the large circulating leukocyte mass. An elevated basal metabolic rate and occasional observation of low blood glucose in leukemic patients has been previously noted. These have been attributed to utilization of the glucose by the leukemic cells and the increased oxygen consumption of this large abnormal cell mass. Studies related to carbohydrate metabolism

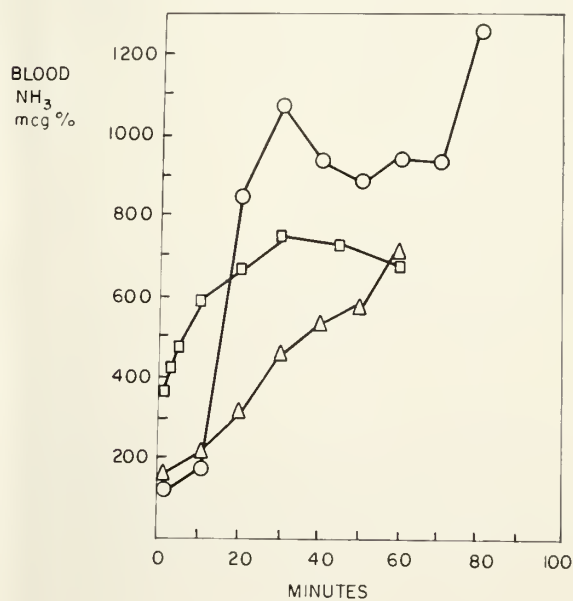


Figure 1

have indicated that the leukemic cell differs from its normal counterpart in enzyme content and enzyme activity.^{4, 5, 6}

Little is known relative to the nitrogen and amino acid metabolism of these cells. Waisman⁷ and Rouser⁸ have noted that glutamic dehydrogenase is increased in leukemia cells and that granulocytic leukemia cells contain no detectable glutamine. Rouser also reports that the plasma glutamine content of patients with chronic granulocytic leukemia (with predominantly polymorphonuclears) is reduced. Since glutamic acid can support cell metabolism in part by entering the Krebs cycle as α -ketoglutarate following deamination of transamination and glutamine as a reversible "store" of ammonia, it seems feasible that the ammonia noted in these sera may be due to active deamination of glutamine and glutamic acid. This process conceivably could be stimulated by decreasing availability of glucose as the plasma glucose is utilized on standing (i.e., gluconeogenesis).

Other possibilities as a source of the ammonia formed are: 1) deamination of other amino acids, 2) proteolysis with ammonia liberation, or 3) deamination of other nitrogenous materials (i.e., adenine by adenylic deaminase).²

The occurrence of this "laboratory phenomenon" in patients with leukemia is worthy of note, since it can cause clinical confusion if one is not aware of its occurrence, and it pointed out to us the paucity of information regarding the amino acid and nitrogen metabolism of the normal and abnormal leukocyte.

References

1. Calkins, W. G.: The blood ammonia in normal persons. *J. Lab. & Clin. Med.* 47:343, 1956.
2. Jacquez, J. A., Jeltsch, R., and Hood, M.: The measurement of ammonia in plasma and blood. *J. Lab. & Clin. Med.* 53:942, 1959.
3. Saifer, A., and Gerstenfeld, S.: The photometric microdetermination of blood glucose with glucose oxidase. *J. Lab. & Clin. Med.* 51:448, 1958.
4. Beck, W. S., and Valentine, W. N.: The carbohydrate metabolism of leucocytes: A review. *Cancer Research* 13:309, 1953.
5. Beck, W. S.: A kinetic analysis of the glycolytic rate and certain glycolytic enzymes in normal and leucemic leucocytes. *J. Biol. Chem.* 216:333, 1955.
6. McKinney, G. R., and Rundles, R. W.: Lactate formation and glycoylase activity in normal and leukemic human leukocytes. *Cancer Research* 67: , 1956.
7. Waisman, H. A.: Some aspects of amino acid metabolism in leukocytes. *The Leukemias: Etiology, Pathophysiology and Treatment*, Edited by J. W. Rebeck, F. H. Bethell and R. W. Menta. Academic Press, Inc., New York, 1957, p. 339.
8. Rouser, G.: Free and easily extractable amino acids in blood cells and body fluids. *The Leukemias: Etiology, Pathophysiology and Treatment*, Edited by J. W. Rebeck, F. H. Bethell and R. W. Menta. Academic Press, Inc., New York, 1957, p. 361.

Editor's note: This article was submitted to The JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, The JOURNAL was able to publish only half of the articles submitted.
The remaining papers will appear in the upcoming issues.
The JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.

Childbearing is more hazardous for teen-agers than for women in their early twenties, according to statistics cited by *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians. Mortality rate of pregnant teen-agers is 2.5 for every 10,000 live births; among those in their early twenties the rate is only 1.9 for the same number of live births.

Greatest menace to the health of pregnant women is eclampsia, a form of toxemia, which in their first pregnancy, tends to attack teen-agers 15 times more often than older women. Among pregnant women who had been pregnant before, the teen-ager is four times as prone to eclampsia as older women.

In a study of 1,500 teen-age maternity patients, a correlation was found between weight gains of 40 pounds or more and the incidence of eclampsia, although *Patterns* points to another study which indicates that overweight did not appear to be a direct cause of eclampsia.

The pipe draws wisdom from the lips of the philosopher, and shuts up the mouths of the foolish; it generates a style of conversation contemplative, thoughtful, benevolent and unaffected.
—William Makepeace Thackeray

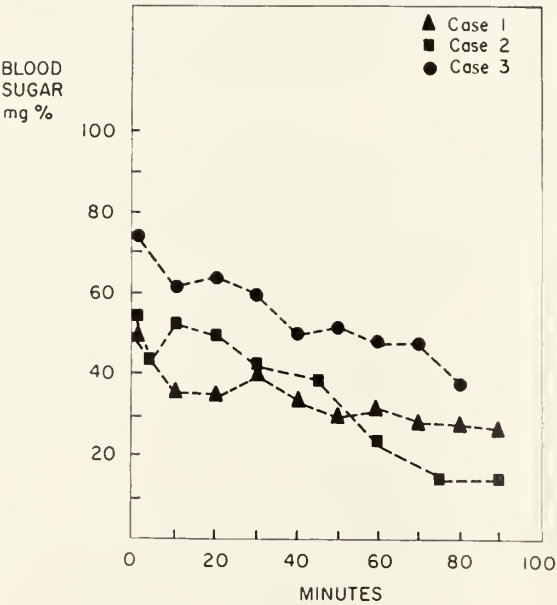


Figure 2

Torticollis

The Treatment of a Case of Spasmodic Torticollis by Means of Hypnosis

WILLIAM SEEMAN, Ph.D.,* *Kansas City*

THIS PAPER CONSTITUTES a brief clinical report on the treatment by hypnotic technique of a young man with spasmodic torticollis. The patient was referred to the Department of Psychiatry by a neurosurgeon, and the treatment was undertaken early in January, 1960.

The patient was married, had one child, and was employed in a task which, in effect, isolated him from any other people. He spoke of this as being "practically pensioned" by the company; and, in effect, he spent a great deal of his time in reading. The position of his head and neck is indicated in *Fig. 1*. Understandably, he had a great deal of difficulty not

"bad for about 27 months. My neck bothered me some—a little, since I was fifteen. It just didn't *feel* right. It didn't feel like it worked right." He recalled that at age 15, while playing football "I really banged down hard on my head." At that time, too, he felt "frustrated; I wasn't making much headway. I was on the B-squad with the scrubs. It worried me more than anything in my life! It started happening then."

The patient reported that he had seen a number of different physicians who had given him a variety of diagnostic impressions. The diagnoses mentioned by the patient were "cerebral palsy, encephalitis, Parkinsonism, torticollis, and nerves." He reported that the referring physician felt that "it could be psychogenic or physical."

A personality test known as the Minnesota Multiphasic Personality Inventory (MMPI) was administered. This test yields a set of scores on a variety of psychological or psychiatric scales, and these scores can be plotted as a personality profile. The MMPI personality profile for this particular patient is presented in *Fig. 2*. Scores between 30 and 70 (see T-scores along the left hand margin) are re-



Figure 1

only driving his car, but executing a large number of other normal functions. Socially, he might be characterized as living the life of a recluse. On his first visit and on a number of other visits he wore around his neck a rubber support which he subsequently discarded.

The patient reported that his condition had been

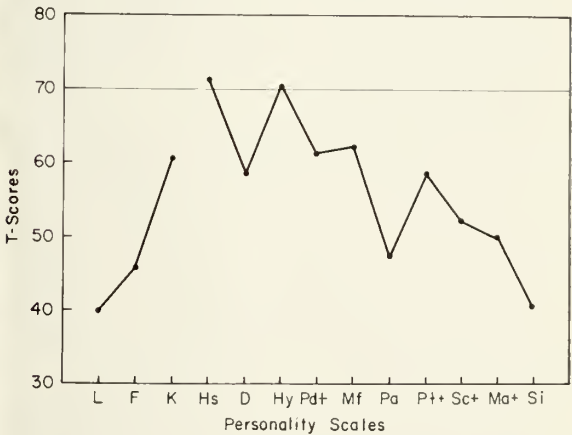


Figure 2

garded as being within "normal limits." Scores at or above the 70 magnitude are regarded as "abnormal" scores. The particular profile pattern observed in this patient's MMPI (*Fig. 2*) is most revealing; for, not only are there two scale scores in the "abnormal" range, but the *particular* scales elevated and the

* Department of Psychiatry, University of Kansas School of Medicine.

shape of the profile are of great significance. The elevated scales 1 and 3 (Hs and Hy) are *somatic* scales; and indicate a personality and an individual who is likely to express his emotional difficulties and his psychological conflicts through bodily symptomatology (in contrast, for instance, to one who is likely to express them, say, in suspecting the intentions of other people or in aggressive personal relationships). Moreover, the first three scales of the profile will be seen to form a "V" shape. This, in the literature of the MMPI, has become known as the "conversion V." In other words, an individual with *this kind* of MMPI profile pattern is likely to present itself as *physically ill* with symptoms which, however, should be suspected as being of "psychogenic" origin; or as having a "psychogenic component." At any rate, it was this MMPI personality profile pattern which suggested a "psychogenic" or psychological basis for the disorder, and which suggested that hypnosis might conceivably be helpful in dealing with the spasmodic torticollis.

There is no one single and approved way of using hypnosis in a case of this sort. One possibility would have been to combine psychotherapy with hypnosis and to use a "hypnotherapeutic" technique. This would involve first hypnotizing the individual and then "exploring" and perhaps "uncovering" significant factors in the life history of this patient connected with the torticollis. An alternative method, and the one decided on here, involves no "uncovering" techniques, but relies, rather, on posthypnotic suggestions. This latter technique is sometimes characterized as "symptomatic" treatment, and it must be admitted that there are therapists who tend somewhat to frown on such techniques. At least three arguments have been adduced against such "symptomatic" treatment:

1. Since such treatment does not eliminate the "dynamic cause" of the symptoms, remission of the symptom must at best be of short duration.
2. For the same reason, remission of a symptom must inevitably be followed by a substitute symptom (sometimes "worse" than the original).
3. Remission of symptoms with this kind of treatment has on occasion been followed by exceedingly disturbing episodes in the life of the patient.

Whatever may be said for or against these arguments, it can be said with absolute confidence that there is no experimental evidence available to support a cause-and-effect relationship relevant to any of the three arguments. Clinical evidence *against* the *inevitability* of 1 and 2 above is certainly available. An unpublished survey by Roy Dorcus, read at the hypnosis symposia in Lawrence in 1960, provides good evidence on this. With respect to number 3, the evidence is fragmentary, highly anecdotal, and absolutely unquantified.

Hypnotic sessions were arranged on a once-a-week basis with the patient. The objective in the first few sessions was simply to achieve "depth" in order to make the suggestions subsequently effective. In the later sessions such posthypnotic suggestion was given while the patient was under hypnosis. These suggestions all centered around the notion of "muscle relaxation"; i.e., the suggestion was given that the neck muscles would gradually relax, that the "natural and normal" use of the neck and head would be recovered. On the sixth visit the patient purported to experience some change, but objective evidence of this was not obvious; the improvement claim was looked on dubiously, though the patient was, of course, never told that this was the case. In subsequent visits, however, it became evident that marked changes were occurring. The frequency of these hypnotic sessions was reduced, and the patient continued to improve. By June it would probably have been impossible for an observer to detect any difficulty. At that point the patient began to return to a more adequate social life, found himself able comfortably to visit friends, etc. Some notion of his condition at that time can be obtained from *Fig. 3*.

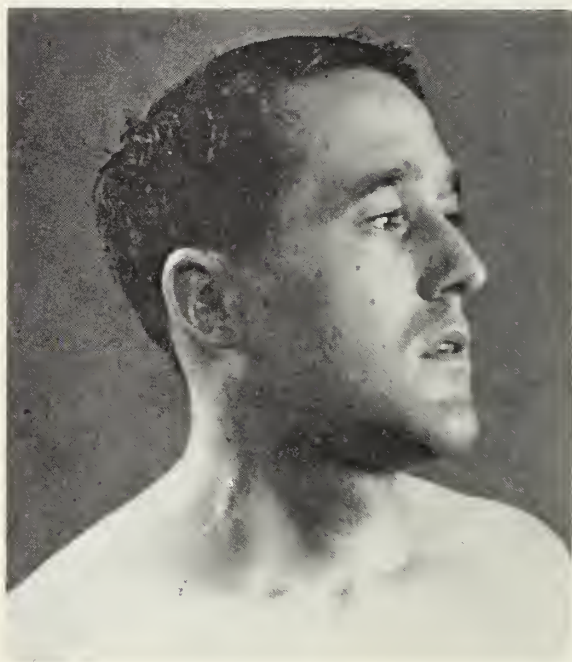


Figure 3

Subsequent follow-up periodically has indicated that the symptom of spasmodic torticollis remains in full remission. The patient has now demonstrated a willingness to explore the possibilities of more adequate and more remunerative vocational objectives. His latest communication registered the information

(Continued on page 317)



C. P. C. ~

Lymphadenopathy, Hepatosplenomegaly, Anemia and Skin Lesions

CASE PRESENTATION

A 13-MONTH-OLD WHITE GIRL was admitted to KUMC for the first time on October 28, 1960, with swelling of the neck, groin and axilla, and pallor and weakness of two months' duration. In May, 1960, clear vesicles developed on the genital labia and became purulent and associated with erythema. On August 18 inguinal swelling developed, and within two weeks she had cervical swelling, fever, pallor and weakness.

The child was born in Oklahoma on September 23, 1959. This was the second pregnancy for the mother, and delivery was at full term, normal, and without complications. The baby's birth weight was 8½ pounds. She had been breast fed, and at the time of her hospitalization she was eating table foods including meat, eggs and vegetables. She sat up at 5½ months of age, and she began to walk at 12 months of age. She had had three DPT and two polio injections, but no smallpox vaccination. She had had no other illnesses or any known allergies. She had had some anorexia during the week before admission.

The baby's father was 34 years old, and her mother was 30 years old. Both were in good health. She had one sister, six years old, who was living and well. A maternal grandfather had diabetes.

The patient was a well developed, pale, white baby girl. Her rectal temperature was 99.2 degrees F.; pulse rate, 160 per minute; respirations, 40 per minute; weight, 23 pounds. Her head was normal. There was no inflammation or exudate from the ears, nose or throat. There were 10 x 10 cm. matted, firm, tender, bilateral lymph nodes in the neck, and nodes ranging from 2 to 5 cm. in diameter in the axilla. The chest was clear and resonant to auscultation and percussion.

Edited by Jesse D. Rising, M.D. and Mahlon Delp, M.D. from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

The heart was of normal size; the rhythm was regular, and no murmurs were heard. The liver was palpable 2 cm. below the right costal margin; the spleen was palpable 1 to 2 cm. below the left costal margin. There was a bluish discoloration of the umbilicus. There was marked inguinal lymphadenopathy with biopsy scars bilaterally. There was a petechial rash over the inguinal region, abdomen, thighs and scalp. The neurological examination was negative.

On admission the specific gravity of the urine was 1.034 with a pH of 5.5, 1 plus albumin, negative sugar, and no abnormal microscopic findings. The leukocyte count was 10,500 with 59 per cent polymorphonuclear neutrophils (56 per cent filamented, 3 per cent non-filamented), 35 per cent lymphocytes, 2 per cent basophils, 4 per cent monocytes, and 1 nucleated red blood cell. The hemoglobin was 7.7 gm. per cent with a hematocrit of 24. On October 29 platelets were 80,000. On November 10 the serum albumin was 2.41 gm. per cent; serum globulin, 1.37; total protein, 3.78. Tuberculin (PPD), histoplasmin and Frei skin tests were negative.

The patient had fever with spikes to 104 degrees. The hemoglobin remained low despite transfusions. Her appetite was poor, and she was irritable. The petechial rash became more dense. On November 5 a caseous exudate developed on her tonsils, bilaterally. A culture grew out pneumococcus and *Neisseria*. On November 8 a purulent discharge developed from the right tympanic membrane. On November 14 a portion of the left tonsil sloughed off. A culture of the sloughed area grew *E. coli*. On November 17 the left tympanic membrane began to drain. From November 10 to November 21 she had loose and occasionally watery diarrhea. On November 11 corticosteroid therapy was started with remission of the fever and definite regression in the size of the lymph nodes. On November 23 some dependent edema developed. On November 28 and 29 she had a five pound weight loss, and the edema disappeared. Her anemia was stabilized; the hemoglobin increased to

9.3 gm. on the day of discharge. She continued to have hepatosplenomegaly and a petechial rash. On November 30 she was discharged and followed as an outpatient.

While at home her appetite improved, and she seemed to do well. On December 9, however, a papular rash developed over her arms and scalp, and within four days it had become vesicular and progressed to involve her trunk. On December 15 she had a fever of 101 degrees. She took fluids poorly.

She was admitted here for the second time on December 16, 1960, with a generalized papulovesicular rash on her palms, the soles of her feet, trunk, extremities and scalp as well as vesicles on the mucous membranes of her mouth.

At that time the leukocyte count was 30,250 with 60 per cent polymorphonuclear neutrophils (32 per cent filamented, 28 per cent non-filamented), 18 per cent lymphocytes, 2 per cent basophils, and 28 per cent monocytes. The hematocrit was 37.

On the morning of December 18 her breathing became more labored, and by late afternoon the respiratory rate was 60 to 70 per minute. Peripheral pulses were 150. Her color was pale, and her extremities were cool. The chest was clear. Within three hours the respiratory rate climbed to 80 per minute, and she had audible rhonchi and rales. She became increasingly more dyspneic and less responsive, and she died quietly at 11:45 p.m.

Dr. Mahlon Delp (moderator): Are there any questions?

Maurice Cashman (Fourth year student):* Had she been exposed to any infectious diseases, exanthemata, fungus diseases, or tuberculosis?

Dr. Russell Etzenhouser (resident in pediatrics): On her previous admission in November there were several cases of exanthemata on the same floor, but she had not previously been exposed before her hospitalization.

Mr. Cashman: Had she recently been vaccinated for smallpox?

Dr. Etzenhouser: There is no record of it.

Gordon Ewy (student): Will you describe the skin lesions in more detail? Did they ever go away? Did she have any vesicles? Was there any purpura in the external auditory canal?

Dr. Etzenhouser: The lesions appeared in May, and from that time they progressed more or less without remission. Essentially they began as vesicles, becoming somewhat purulent and leaving a raw area in the genital area. By September the groin was involved, and during her hospitalization the lesions extended up into the trunk and over the scalp. Some

areas around the scalp and the ears were suggestive of seborrhea. The petechial areas that started in the groin had a scale-like coating which could be considered as seborrheic.

Dr. Delp: When this child first became ill in May of last year were vesicular lesions seen only on the genital area, or were there lesions elsewhere on her skin?

Dr. Etzenhouser: None were seen elsewhere.

Gordon Ewy (student): Will you describe the peripheral blood smear on her last admission with special reference to the type and immaturity of the cells?

Dr. Delp: The differential was 60 per cent polymorphonuclear neutrophils (32 per cent filamented, 28 per cent non-filamented), 18 per cent lymphocytes, 2 per cent basophils, 28 per cent monocytes.

Joseph Henning (student): Was a touch preparation of the skin done for histiocytes?

Dr. Etzenhouser: Yes.

Mr. Cashman: Did she have any bone pain at any time during her course?

Dr. Etzenhouser: None was reported.

Bruce Gill (student): What was her fever course?

Dr. Etzenhouser: She was essentially afebrile until late in August. Early in September she developed fever to 103 degrees, and from October 28 she spiked fever almost daily to 104 degrees. There were remissions occasionally, and during one week she had fever of about 101 degrees.

Mr. Gill: What were the blood urea nitrogen values on her first and second admissions?

Dr. Delp: The first BUN was 10.5 mg. per cent; the second was 20.5 mg. per cent.

Mr. Cashman: Was a Coombs' test done?

Dr. Delp: No.

Mr. Gill: What was the reticulocyte count?

Dr. Delp: It was as high as 27 per cent.

Mr. Henning: Did she have facial edema?

Dr. Etzenhouser: There was a fullness about her face, but I do not believe that it could be described as edema.

Mr. Gill: Was this fullness noticeable before corticoid therapy was started?

Dr. Etzenhouser: Yes.

Mr. Henning: Was a serum cholesterol done?

Dr. Etzenhouser: No.

Mr. Cashman: What was the serology on the patient and her mother?

Dr. Etzenhouser: We do not have that report.

Mr. Ewy: Were antibiotics given?

Dr. Etzenhouser: Antibiotics were started after the first week of hospitalization, and continued throughout her course.

Mr. Ewy: Were blood cultures taken on her last admission?

*Although a student at the time of this conference in March, 1961, he, like the others referred to as students, received the M.D. degree in June, 1961.

Dr. Etzenhouser: Blood cultures were taken on numerous occasions during her first admission and at least once on her last admission, but no growth was reported.

Mr. Cashman: Were precipitin or complement fixation tests done?

Dr. Etzenhouser: No.

Mr. Henning: Were stool cultures done at the time she had diarrhea?

Dr. Etzenhouser: Stool cultures were negative.

Mr. Henning: Will you describe the diarrhea?

Dr. Etzenhouser: It was watery and loose with some mucous and occasional flecks of blood, and it was fairly profuse during the week that it lasted.

Mr. Gill: Will you describe the clinical picture before death?

Dr. Etzenhouser: The child was extremely dyspneic and pale. Her pulse was rapid, and her extremities were cool.

Dr. Delp: Was she cyanotic?

Dr. Etzenhouser: She was quite pale, but I do not believe that she was cyanotic.

Mr. Ewy: Was she in a Croupette at that time?

Dr. Etzenhouser: She was in a Croupette with oxygen.

Mr. Henning: Were there any other chest findings?

Dr. Etzenhouser: Rhonchi and rales developed rather suddenly about three hours before death.

Mr. Cashman: Was there any clinical evidence of dehydration?

Dr. Etzenhouser: No.

Mr. Gill: Were skin cultures or gastric washings done?

Dr. Etzenhouser: Cultures of the skin lesions showed non-hemolytic staphylococci, numerous enterococci and *E. coli*, and the drainage from the ear showed enterococci and *E. coli*. No gastric washings were done.

Mr. Ewy: Were the lesions described as umbilicated at any time?

Dr. Etzenhouser: Only on the last admission.

Mr. Gill: Were any liver function tests done, any repeat serum proteins or bilirubins?

Dr. Delp: The repeat serum proteins varied only slightly from those on the first admission.

Mr. Cashman: Was there any history of the patient's use of raw milk?

Dr. Etzenhouser: No.

Mr. Henning: Were there any changes in platelets?

Dr. Etzenhouser: The platelet count was consistently low, ranging from 80,000 down to 30,000.

Dr. Delp: May we have the x-rays now, please?

X-rays

Mr. Ewy: A chest film taken on the first admis-

sion shows evidence of soft tissue shadows which could confirm the axillary and cervical lymphadenopathy. There is no evidence of bony abnormalities or osteolytic lesions. The costophrenic and cardiophrenic angles are clear, and the lung fields look normal. The heart shadow is not remarkable.

An abdominal film taken on the first admission (*Figure 1*) shows an osteolytic lesion in the wing of the ileum. There is no other evidence of bony abnormalities. There is evidence of hepatomegaly but no splenomegaly.

No bony abnormalities are seen on the film of the skull, and the sella is normal in size.

A film taken on the second admission does not demonstrate any bony abnormalities, and the costophrenic and cardiophrenic angles are clear. A definite infiltrate is seen on the more central area, but peripherally the lungs are clear. There is a suggestion of a mediastinal mass. The heart is of normal size. I interpret these films as showing soft tissue swelling, evidence of osteolytic lesions, and, terminally, pulmonary infiltration.

Dr. Delp: Thank you. Dr. Germann, may we have your comments?

Dr. Donald Germann (radiologist): As has been pointed out, in the margin of the ileum on the right side there is a smooth defect, and there is no bony reaction change or soft tissue swelling around it; it is strictly lytic.

Dr. Delp: Thank you. We are now obligated to make a primary diagnosis of the disease which first brought the child to the physician, the interpretation of the course of the disease and, finally, an explanation for her death. May we have your discussion, please, Mr. Henning?

DIFFERENTIAL DIAGNOSIS

Mr. Henning: This small child had a normal development and was apparently well until the onset of her illness at 11 months of age when she developed lymphadenopathy, fever, pallor and weakness. Two months later she developed hepatosplenomegaly, a petechial rash, anemia and thrombocytopenia. Her hospital course was marked by fever, persistent anemia and progression of the rash, and she developed tonsillitis, otitis and diarrhea. Her illness apparently was stabilized on corticoids, but following her discharge, the rash became generalized. She was readmitted at 15 months of age, and died two days later in respiratory distress.

My differential diagnosis is based on generalized lymphadenopathy, hepatosplenomegaly, anemia, thrombocytopenia and cutaneous lesions, and a rapidly fatal course in a 13-month-old child. Fifty years ago if an infant developed hepatosplenomegaly, anemia, and skin lesions involving her palms and the soles of her feet the diagnosis probably would

have been congenital syphilis. Lymphadenopathy is variable but can be quite marked, and untreated cases may be rapidly fatal. The manifestations of that disease almost always appear before the age of three, and the serology is positive in 95 per cent of the patients over six months of age. This entity can be ruled out because of the age of onset and the lack of typical stigmata. I would prefer to rule it out on the basis of the negative serology, but we have no information in that regard.

Infectious granulomas such as coccidiomycosis, histoplasmosis, and tuberculosis in their disseminated forms may present with many of the signs and symptoms that were seen in our patient. A definitive diagnosis in each of these disease states is dependent upon the isolation of the causative agent by culture or by its demonstration in the tissues. Serological testing could also be helpful. The lack of exposure in endemic areas and the atypism of the subsequent clinical course discounts coccidiomycosis. Histoplasmosis cannot definitely be excluded, but thrombocytopenia and peripheral lymphadenopathy of a marked degree are not usually present in children until late.

Although it is difficult to dismiss tuberculosis the lack of a history of contact, the matted character of the lymph nodes, the acute course, and the patient's response to corticoid therapy militates against that diagnosis.

Patients with lymphoma initially present first with lymphadenopathy. They exhibit fever and anorexia, and ultimately develop a leukemic blood picture with anemia, thrombocytopenia and hemorrhagic tendencies. Lymphoma is uncommon in infants, however, and does not explain our patient's early skin manifestations, thrombocytopenia and anemia. Acute leukemia in children is a rapidly fatal disease characterized by fever, marked prostration, a rapidly developing anemia, and, frequently, hemorrhagic manifestations. Although lymphadenopathy and hepatomegaly are less conspicuous than in the chronic types of the disease, cervical node enlargements may be great in many cases of acute leukemia. The degree of leukocytosis is often misleading. The number and type of the immature forms are more important. As in our patient, children with acute leukemia not infrequently develop necrotic and gangrenous processes of mucous membranes of the mouth and throat. Factors against the diagnosis are the lack of bone pains which are frequently found in the leukemics, the cutaneous lesions, and the lack of significant numbers of immature forms of leukocytes in the early peripheral blood smear. Although the child's illness can be explained by one disease process, it must be remembered that one of the fatal complications of corticoid therapy is an overwhelming viral sepsis with a member of the herpes-varicella group. This secondary complica-

tion could help to explain the various skin manifestations seen in our patient. It is not possible to rule it out on the information which is available.

I propose another disease process as a pathological state to explain the infant's death. Histiocytosis-X, a term proposed by Lichtenstein in 1953, describes a spectrum of diseases which include eosinophilic granuloma, Hand-Schuller-Christian disease, and Letterer-Siwe disease. Histiocytosis-X is only one subdivision of a broader classification of the reticuloendothelioses. The majority of these diseases are manifested by disturbances of lipid metabolism and central nervous system derangement, neither of which were seen here. The three idiopathic diseases which make up histiocytosis-X were originally described separately, but they have in common a hyperplastic process of the reticuloendothelial system which results in the formation of granulomas. This spectrum began with Letterer-Siwe disease which is an acute, fatal disease of infants. Hand-Schuller-Christian disease is a chronic disease of young adults, and eosinophilic granuloma is a benign, non-focal destructive bone tumor in older children and adults. The divisions are still called by their original names, and vary primarily in the age of onset and the acuteness of their clinical course.

My primary diagnosis of the patient is Letterer-Siwe disease. Although the first case of this disease was reported by Letterer in 1924 it was not a well described entity until nine years later when Siwe delineated its clinical and pathological characteristics. Letterer-Siwe disease is a rapidly progressive, fatal disease in infants, and it is characterized by generalized lymphadenopathy, hepatosplenomegaly, anemia, hemorrhagic diathesis, osteolytic bone lesions, and cutaneous manifestations. The cutaneous lesions, have variously been described as maculo-papular, seborrheic, yellow, scaly, vesicular, or any combinations of these. The infants are extremely susceptible to secondary infection, and otitis, and pharyngitis and pneumonitis are common. Pneumonic infiltration of the lung parenchyma by histiocytes as well as incroachment of the respiratory passages by enlarged mediastinal lymph nodes are often seen. This compromise of the respiratory function together with the anemia may explain the patient's tachycardia and tachypnea. A superimposed pneumonitis and possible septicemia resulted in cardio-respiratory collapse and death. Our patient exhibited all of the typical manifestations of Letterer-Siwe disease.

It is interesting to note the patient's terminal blood picture, especially the monocytosis. In a review of the literature there were five cases of Letterer-Siwe disease terminating in acute monocytic anemia. In postulating Letterer-Siwe disease as a primary diagnosis it is well to remember that this disease and acute leukemia may exactly mimic each other. The

final definitive diagnosis is based on histologic examination, and even then a conflicting diagnosis may occur.

CLINICAL DISCUSSION

Dr. Delp: Thank you, Mr. Henning. What is your diagnosis, Mr. Cashman?

Mr. Cashman: I believe that the skin manifestations could best be explained by Letterer-Siwe disease.

Dr. Delp: Mr. Gill?

Mr. Gill: My diagnosis is Letterer-Siwe disease, possibly terminating with septicemia or viremia.

Dr. Delp: Mr. Ewy?

Mr. Ewy: Letterer-Siwe disease.

Dr. Delp: Mr. Cashman, assuming that your diagnosis is correct, how do you explain the patient's lymphadenopathy? Was this a neoplastic process?

Mr. Cashman: It is believed by some that Letterer-Siwe disease is a neoplastic process involving the histiocytes and reticulocytes. Multiplication of these cells in the lymph nodes could adequately explain the lymphadenopathy. The typical pathological picture is enlarged granulomas with the histiocytes in the lymph nodes throughout the body.

Dr. Delp: What is your explanation for the low platelet count, Mr. Gill?

Mr. Gill: A low platelet count is typical of Letterer-Siwe disease. Hypersplenism or an enlarged spleen may also account for the decrease in platelets. One could also postulate the bone marrow maturation arrest or abnormality in the platelets, but I do not believe that that was the reason for it.

Dr. Delp: What is your explanation for the reticulocytosis, Mr. Ewy?

Mr. Ewy: I believe that it was just a compensation process for the marked anemia which was probably on the basis of a hemolytic process. The histiocytes also phagocytize the red cells.

Dr. Delp: What produced the hemolysis?

Mr. Ewy: I believe an immunological process cut short the red cell life.

Dr. Delp: What is your explanation for the bone lesions, Mr. Henning?

Mr. Henning: Bone lesions usually show a granulomatous process. Although I can not explain the exact mechanism, this is a typical lesion which is also found in that disease.

Dr. Delp: The child was placed on corticoids some time during August or September. What are your comments about the part that corticosteroids might have played in her subsequent course, Mr. Cashman?

Mr. Cashman: As far as is known at the present time, the treatment for Letterer-Siwe disease consists of corticosteroids, and favorable responses have been reported with that type of therapy. It is stated in the protocol that her fever did go down and her

hemoglobin went up. I believe that clinically she showed some improvement on corticosteroid therapy. As has been mentioned in connection with leukemia, several complications of corticosteroid therapy could have been present here, but I prefer to explain it on one logical basis of a pathological process.

Dr. Delp: The skin lesions seen here played an important part in the patient's disease. What are your comments about these skin lesions, Mr. Gill?

Mr. Gill: Many types of lesions are described with our primary disease process, and these may vary and involve the palms and soles of the feet. They may be petechial and purpuric. One should not lose sight of the fact, however, that cases often develop a viral disease, while on corticosteroids. A rash may have developed from viremia, for example, varicella or vaccinia, which would account for vesicular lesions.

Dr. Delp: Mr. Ewy?

Mr. Ewy: I agree with that, especially since these lesions were described at one time as being umbilicated.

Dr. Delp: Mr. Henning?

Mr. Henning: There is the possibility that these lesions could be unrelated to the primary disease process.

Dr. Delp: What is your explanation for the diarrhea, Mr. Cashman?

Mr. Cashman: One explanation is the basic pathologic process which has been postulated. Infiltration with histiocytes occur in lymphoid tissue all over the body, including the intestinal tract. Ulcerations of the intestinal tract could cause irritation and diarrhea, although there was not much evidence of bleeding into the gastrointestinal tract. In addition, she received antibiotics for the pharyngitis and otitis, and that could have caused a change in the gastrointestinal flora and diarrhea.

Dr. Delp: Mr. Gill?

Mr. Gill: There could have been an overgrowth of staphylococci.

Dr. Delp: Dr. Wenner, may we have your comments?

Dr. Herbert A. Wenner (research professor of pediatrics): When I first saw the patient there were lymphadenitis in the groin and large lymph nodes in the neck. The lymph nodes were biopsied with the pathological report of granulomatous reaction but not specific in any particular details. At that time I was uncertain of the diagnosis because monilia had been cultured on the lesions in the vagina, in the area of the breakdown of the lymph nodes, and at the site of the biopsy. The patient had a normal white count, and repeat blood cultures were negative. She had a spiking temperature which would return to normal with various antibiotics, but while still under treatment would rise again.

The second time that I saw the baby my impression

was that this was a generalized reticuloendotheliosis because the rash on the skin had become much more apparent, and some of the potential characteristics of Letterer-Siwe disease, or generalized reticuloendotheliosis, had developed. Another lymph node was biopsied on the basis of that impression, and the results confirmed the clinical impression that this was a reticuloendotheliosis, and, at least, a granulomatous reaction existed with it. The bone lesions were not initially seen.

The baby did fairly well on corticoids while under antibiotic therapy, and on November 30 it was decided to let her go home to the grandparents for Thanksgiving. On that day another patient in the early stages of chickenpox was admitted. We were cognizant of the fact that that imposed a risk on the baby, a point which further forced my hand to let her go home. The mother later told me that the two children were at the opposite ends of the floor and that the only contact was in passing by the door of the baby who had the chickenpox. We asked the mother to be on the alert, however, and in about 12 days she brought the baby back to the hospital with lesions that supposedly were early lesions of chickenpox. These lesions became quite evident within the next two days, and it was apparent that this was a life-threatening affair for her. She was given gamma globulin on the second day after the earliest vesicles appeared, but she died of generalized chickenpox.

Dr. Delp: Could we have your comments, please, Dr. Frenkel?

Dr. Jack Frenkel (pathologist): When I saw the baby and the biopsy I thought that because there were numerous necrotic areas in the lymph nodes that there could be a reasonable chance that this was not a neoplastic disease, but an infectious disease. Therefore, it was worthwhile to attempt to isolate something from it which could perhaps be treated specifically. Consequently, animals were inoculated and treated with cortisone to enhance any possible agent which might be there or depress the immunogenesis, but nothing was isolated. In reviewing the literature I found that Letterer-Siwe disease occasionally gives rise to moderately extensive areas of necrosis, and I acquiesced in that diagnosis.

Dr. Delp: Thank you. Dr. Weber, you saw the patient the day before she died. May we have your comments, please?

Dr. Robert Weber (internist): At the time I saw the baby the diagnosis of Letterer-Siwe disease was fairly well established, and the problem was primarily that of the disseminated varicella, or chickenpox. This child had two reasons for increased susceptibility, the primary disease probably being the more important, but the presence of the corticosteroids undoubtedly increased the danger from the chickenpox. That has

even been reported in normal children. In my opinion, this is one of the most important lessons to be learned here. Any child who is on corticosteroids is in danger if exposed to chickenpox because then it becomes a disseminated disease. The viremia becomes extremely dangerous, and the mortality rate is enhanced tremendously. I would be surprised to find that this child had a chickenpox pneumonia as a complication, although the protocol certainly makes it seem likely. That complication has been almost exclusive in adults, but with the corticosteroids, I wonder whether it could have been a possibility at the post mortem.

Mr. Cashman: What was the dose of corticoids?

Dr. Delp: The dose was decreased considerably; I believe it was cut in half.

Mr. Cashman: Did she show any improvement after the decrease in dosage?

Dr. Delp: No, because she had been exposed to chickenpox. Now if there are no more questions, we will have the pathological report.

PATHOLOGICAL REPORT

Dr. Frank Mantz (pathologist): It seems that there is little left to do in this case but to confirm everybody's diagnoses. It is my belief that this can best be done by a review of the biopsy of the lymph node which was obtained in life. There we observed a diffuse proliferation of rather wild and distinctly abnormal reticuloendothelial cells replacing the normal architecture and showing evidence of rather striking mitotic activity. Associated with this was a somewhat extensive degree of giant cell formation, numerous chronic inflammatory cells and many eosinophiles.

There were also many broad areas of necrosis, similar to those described by Otani,¹ resulting in a somewhat granulomatous appearance. I believe that this is certainly the classical histological appearance of Letterer-Siwe disease.

I do not intend to indulge in the usual polemics which follow a discussion of this particular process, but I would like to establish my personal feeling that this is a quasi neoplastic proliferation of reticuloendothelial cells closely related to eosinophilic granuloma and Hand-Schuller-Christian disease, and that mutations between these various forms do occur.

At autopsy there was rather striking evidence that the lesion had been considerably affected by therapy. There had been complete reduction of the peripheral lymphadenopathy and traces of the disease could be found only in the mesenteric lymph nodes, the lymphoid tissue of the gastrointestinal tract, the retroperitoneal lymph nodes, and possibly in the lung, the spleen and the bone marrow.

The superior mesenteric lymph nodes offered the only area where we could satisfactorily confirm the diagnosis. At other sites the disease was altered beyond recognition, a feature which I hope to bring out



Figure 1. X-ray taken on the first admission.

from another angle. In these lymph nodes there were residual large, abnormal reticuloendothelial cells. They were markedly reduced in number permitting recognition of the underlying normal lymph node architecture.

The individual cells were quite different from those we observed previously. There was no evidence of mitotic activity. The tumor elements were quite swollen and frequently appeared vacuolated. They did not, however, contain fat. I must assume that this is an effect of adrenocorticosteroid therapy, producing regression by inhibition of mitosis and subsidence of the lesion by attrition of abnormal cells.

Within the lymph nodes, as well as the liver and the spleen, there was abundant evidence of hemosiderosis. Within the liver and spleen this was associated with extra medullary hematopoiesis, and I must assume that there was indeed a hemolytic process. This feature is quite common in abnormal proliferative disorders of the reticuloendothelial system of all types.

The most interesting feature of the autopsy related to the terminal illness. Observed upon the skin were a multitude of vesicles (Figure 2) apparently occurring intra epidermally and apparently of varying ages. Some were quite isolated, fresh, and consisted of tiny dewdrops surrounded by an erythematous base. Others were clustered and had become confluent with evidences of hemorrhage, early ulceration and crusting. Within them there was ballooning degeneration of the epithelial cells associated with marked nuclear

abnormality and cellular multinucleation. Within these cells there were large and rather characteristic intranuclear bodies associated with contraction of the nucleoplasm to produce the appearance of what is known generally as Cowdry type A inclusions (Figure 3). These inclusions are rather typical of varicella but certainly do not permit us to make a specific diagnosis since the viral inclusions of varicella, herpes zoster and herpes simplex are practically identical morphologically. The gross appearance and distribution of the lesions, however, and the history of exposure certainly make the lesions those of varicella beyond peradventure of doubt.

Striking changes were seen in the lungs. These were massively enlarged but showed no gross evidence of consolidation. There were punctate macular areas of discoloration immediately beneath the pleura which represented irregular foci of somewhat hemorrhagic, fibrinous and necrotizing pneumonitis. Similar lesions were also scattered throughout the central areas. Small intranuclear inclusions were present here as well, involving the septal cells (Figure 4) and large desquamated alveolar cells. I believe it to be highly significant that there was no evidence of inflammatory infiltration.



Figure 2. Intraepidermal vesicle of varicella.

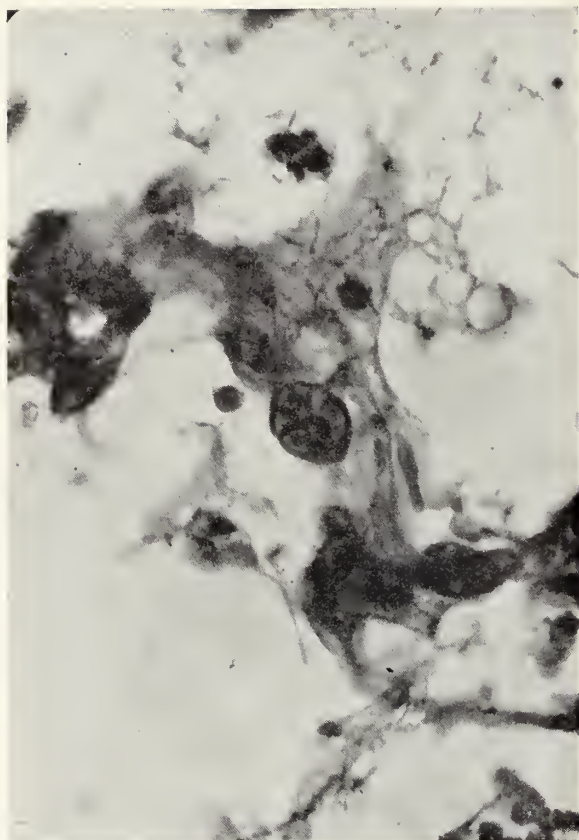


Figure 3. Intranuclear varicelliform inclusions in acantholytic cell of epidermis.

Lesions similar to those noted in the skin were present in the hypopharynx and upper esophagus. Some of these were early and showed the profound cellular alterations produced by virus infection including cellular gigantism, cellular irregularity, individual cell necrosis and amitotic division with formation of syncytia. Scattered inclusions could be observed in occasional cells throughout the remainder of the gastrointestinal tract, but no additional specific lesions were present.

It is of some interest that virus infection extended throughout the biliary tree. Intranuclear inclusions were observed frequently within the bile ducts many of which appeared necrotic. Occasionally this resulted in total loss of the lining epithelium with bile diffusion and the production of bile granulomata. Associated with this were focal areas of necrosis extending from portal areas to involve the peripheral portion of lobules. Adjacent to the necrotic areas many of the polygonal cells were found to contain viral inclusions (Figure 5). The absence of inflammation once more was striking.

To return to the reticuloendothelial system, we made the statement that, other than in the upper mesenteric lymph nodes, the diagnosis of Letterer-

Siwe's disease could no longer be achieved. In this regard the lymphoid follicles and Peyer's patches within the intestinal tract are of interest showing evidence of remote necrosis and ulceration which since had healed with epithelialization of the surface. I believe that this fits well with the history of diarrhea. The underlying lymphoid tissue, as well as the lymph nodes in the retroperitoneal and peri-iliac areas, and the spleen showed profound necrosis. Here the degree of destruction was far in excess of that which was observed originally in the superior mesenteric nodes (Figure 6). This can be explained in part by a tremendous population of Letterer-Siwe type cells showing abundant intranuclear viral inclusions (Figure 7). There was also evidence of rather profound proliferation of capillaries throughout the area, each capillary apparently plugged by either proliferating or swollen endothelial cells infected with virus. This invites consideration of a predilection of varicella virus for young and proliferating tissue. Furthermore, a specific oncolytic effect is suggested since necrosis of tumor was evident only where virus infection was found.

The spleen showed threefold enlargement and contained foci of minute necrosis confined to the follicles

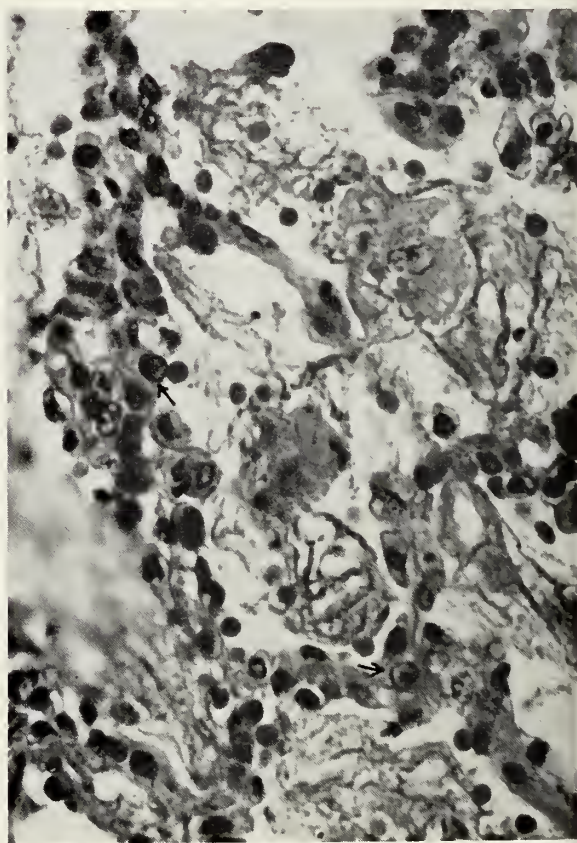


Figure 4. Varicella pneumonia. Varicelliform inclusions in alveolar septal cells.

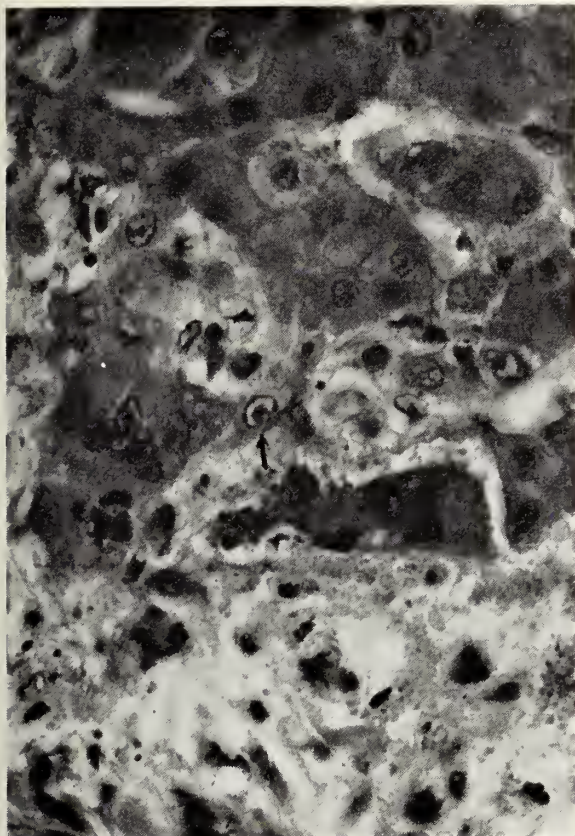


Figure 5. Varicella hepatitis. Periportal necrosis with varicelliform inclusions in nuclei of polygonal cells.

and along the trabeculae. Viral inclusions were present in the necrotic masses.

The bone marrow was examined at several sites and was found to be somewhat hypocellular with multiple focal areas of necrosis. Under high power we observed within large reticuloendothelial cells the presence of classical varicelliform inclusions. In the megakaryocyte there was marked nuclear alteration from which I suspect invasion by the virus.

As far as the remaining organs were concerned, a careful study which included the brain, adrenals, pancreas and the kidneys showed no evidence of viral infection except within a parathyroid where one minute area of necrosis was evident and scattered viral inclusions could be seen.

In summary, I believe that the basic morbid process was Letterer-Siwe disease which had regressed under the stimulation of cortisone. In the course of this favorable response, the patient unfortunately developed chickenpox. Presumably because of reduced resistance inherent to cortisone therapy,^{2, 3} widespread dissemination occurred. This distribution and morphology is considered typical.⁴ I would like to point out that fatal varicella is a rare phenomenon, not exceeding 0.4 per cent in any series. We are quite aware

that fatalities of this nature occur in usually benign viral diseases, but since there have been two similar cases, one of varicella and one of disseminated herpes simplex in patients previously the subject of these conferences.

Of extreme interest to me is the alteration observed where virus apparently invaded the Letterer-Siwe tissue suggesting a marked oncolytic effect. This reminds me that in the recent past viral therapy was a popular area for research among oncologists.⁵ West Nile virus and 101 virus were found particularly capable of producing necrosis in animal tumors as well as in tumors of terminal human carcinoma patients.

Dr. Delp: Are there any questions of Dr. Mantz?

Mr. Gill: Was there any marked degree of phagocytosis of the erythrocytes?

Dr. Mantz: Careful search for erythrophagocytosis failed to show this process.

Mr. Cashman: I wonder whether the pathologist found any explanation for the marked increase in the white cell count toward the last, and whether the terminal event would be involvement of the bone marrow.

Dr. Mantz: I infer from the bone marrow changes

(Continued on page 323)

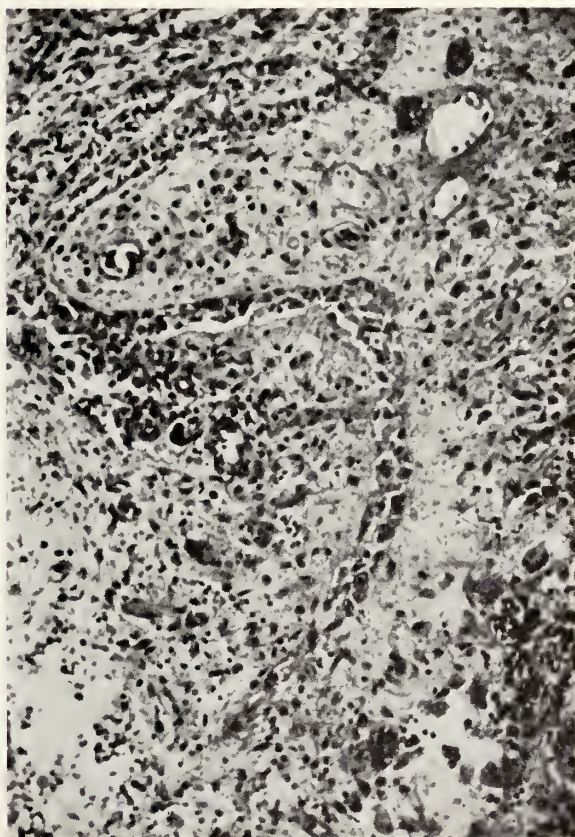


Figure 6. Necrosis of lymph node altered by Letterer-Siwe's disease and showing marked endothelial proliferation.

Radiology

Case of the Month

Edited by COLVIN AGNEW, M.D., *Kansas City*

Radiologic Description

Prominent, coarse, wavy trabeculae have replaced the normal delicate fine uniform pattern of the pubic and ischial rami and have extensively altered the texture of both iliac bones. There has been enlargement of the ischial and pubic rami. While overgrowth of bone has not been demonstrated of either iliac bone, there has been an overall increase in density. The lumbar vertebral bodies and femora are essentially normal. There does not appear to be any involvement of the sacrum.

Osteitis deformans (Paget's Disease) can hardly be mistaken for anything else when it presents this radiologic appearance. Paget's Disease in its less classic appearance may, at times, be difficult to distinguish from metastatic carcinoma of the prostate.

Clinical Summary

A sixty-five-year-old man was admitted with abdominal distress and with a tentative diagnosis of duodenal ulcer disease. The film of the abdomen (*Fig. 1*) was made before the barium was administered. He had no symptoms relative to the changes seen in the bone. His abdominal complaints have been proven to be due to pancreatic carcinoma.

Discussion

Osteitis deformans is rarely seen under the age of thirty and the greatest incidence is between forty and fifty. The sacrum, lumbar spine and femurs are most frequently involved with the skull, sternum and pelvis next most affected. It may involve one bone or several.

Radiologic findings are quite characteristic. When the shafts of long bones are involved, these are always thickened and expanded. The cortex loses its homogeneous density and the trabeculae appear in the region of the usual cortical density. The marrow cavity is partially or completely obliterated by a wavy thick bony meshwork with radiolucent interstices. These longitudinal bony striae appear grouped into bunches or wavy strands, especially in the neck of the femur and the pelvis. Long bone shafts are bowed later due to softening. Although the density is increased, the bone is actually softer than normal. Small cyst-like areas may be seen between these heavy wavy trabeculae with extensive new bone formation,

particularly in the pelvis. This may resemble carcinoma of the prostate in certain instances and in certain stages of the disease, particularly when the pelvis is involved.

Characteristic changes with metastatic carcinoma of the prostate resemble Paget's Disease very little. The usual mixed osteolytic and osteoblastic lesions from metastatic carcinoma of the prostate produce circular areas of increased density of various sizes. Early, they may involve only small parts of the bone but as they later become confluent and are usually multiple, these extensive changes may resemble some forms of Paget's Disease. The bone destruction is seldom visible and is masked by osteoblastic reaction. There is no tendency to form longitudinal striae as seen in Paget's Disease. There is no tendency for the bone to enlarge as is regularly seen in Paget's Disease. In border line cases it may be difficult to distinguish between metastatic carcinoma of the prostate and Paget's Disease.

Frequently blood chemistry determinations will easily swing the pendulum to the proper diagnosis. Carcinoma of the prostate with bony metastasis usually produces an elevated serum acid phosphatase while Paget's Disease does not. Both may produce elevated serum alkaline phosphatases. Most references state that Paget's Disease is about equally divided between the sexes. There have been reported instances of multiple cases within a family, both in the same and different generations.

Complications of Paget's Disease include fracture, pseudo fracture, and malignant changes. Fractures usually are transverse and heal rapidly and do not re-fracture easily. Pseudo fractures appear as a transverse zone of decalcification running from the periphery to the convex border to the medulla. They may be single or multiple.

Sarcomatous degeneration represents the most serious complication of Paget's Disease. It has been estimated that nearly 40 per cent of all osteogenic sarcoma may occur in association with Paget's Disease.²

The original description leaves little to be desired. Sir James Paget considered the following to be the chief characters of the "infection." "It begins in middle age or later. It is very slow in progress and may continue for many years without influence on the general health and give no other trouble than

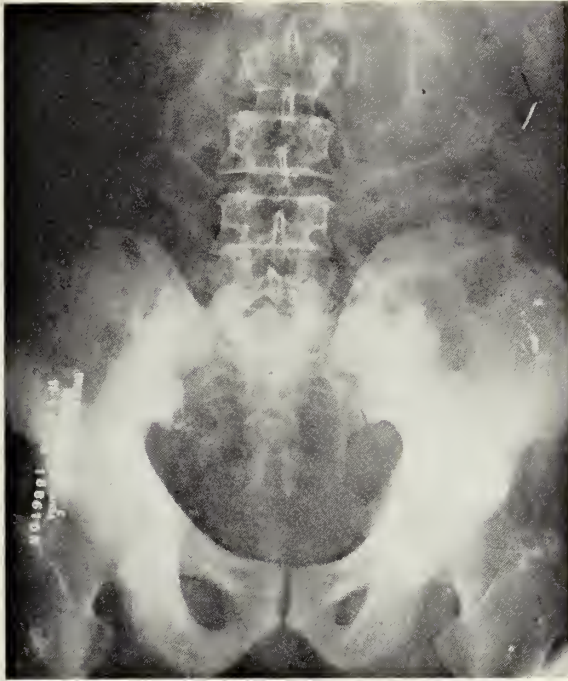


Figure 1. Extensive alteration of normal trabecular pattern and bone density of the pelvic bones in an asymptomatic man.

those which are due to the changes of shape, size and direction of diseased bone. Even when the skull is largely thickened and all of its bones exceedingly altered in structure, the mind remains unaffected. The disease affects most frequently the long bones of the lower extremities in the skull and is usually symmetrical. The bones enlarge and soften, and those bearing weight yield and become unnaturally curved and misshapen, suggesting the proposed name, 'Osteitis deformans.' The spine, whether by yielding to the weight of overgrown skull or by changes in its own structure may sink and seem to shorten, with greatly increased dorsal and lumbar curves; the pelvis may become wide, the necks of the femora may become nearly horizontal, but the limbs, however misshapen, remain strong and fit to support the trunk. In its earlier periods and sometimes through all its course the disease is attended with pains in

Several recent issues of The JOURNAL have included a case report in the field of radiology. The Editorial Board feels that these case reports are interesting and instructive, and invites contributions from radiologists anywhere in the state. Though it may not appear each month, it will appear whenever suitable material is available.—Ed.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

THERE was an unusually large attendance at the meeting of this Society on the 14th inst., when a paper upon a form of chronic inflammation of bones (osteitis deformans), by Sir James Paget, President, was read and discussed, the speakers being Sir William Gull, Mr. Brudenell Carter, Mr. Barwell, and Dr. Goodhart.

Figure 2. Paragraph 1, from the account of Sir James Paget's original description.

the affected bone—pains of widely various severity, and variously described as rheumatic, gouty, neuralgic, not especially nocturnal or periodical. It is not attended with fever. No characteristic conditions of urine or feces have been found in it. It is not associated with any constitutional disease unless it be cancer, of which three out of the five cases recorded in the paper were the subject."

Acknowledgement

The clinical material was presented by Melvin Masterson, M.D., Department of Radiology, KUMC.

References

1. Archer, V. W., The Osseous System, Year Book Publishers, 1945.
2. Brailford, J. F., Radiology of Bones and Joints, Williams & Williams Company, Baltimore, 1948.
3. Paget, J., On a Form of Chronic Inflammation of Bones (Osteitis deformans); The Lancet, Vol. 2, Page 714-716, 1876.

Torticollis

(Continued from page 306)

that he is interviewing and being interviewed for a variety of sales jobs.

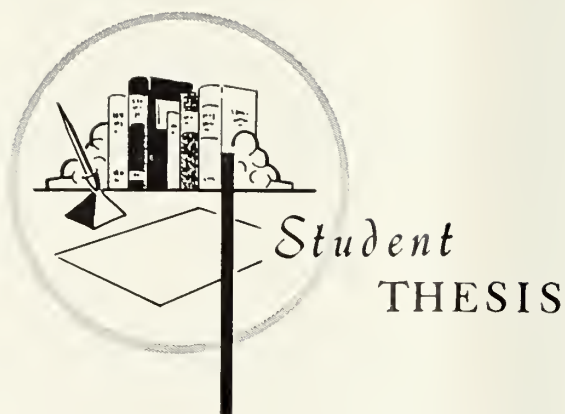
Editor's Note: This article was submitted to THE JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, THE JOURNAL was able to publish only half of the articles submitted.

The remaining papers will appear in the upcoming issues.

THE JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.

Tell a man something is bad, and he's not all sure he wants to give it up. Describe it as stupid, and he knows it's the better part of caution to listen.—David Seabury

We would all rather be in the company of somebody we like than in the company of the most superior being of our acquaintance.—Frank Swinnerton



Hereditary Nephritis

HUGH D. GREER, III, M.D., *New Hampshire*

RECENT LITERATURE indicates that hereditary nephritis is an established, but ill-defined entity. Thirteen reports of hereditary nephritis involving three or more generations were found in a search of the literature from 1881 when the first kindred was studied. It has been reported under the following designations: "Idiopathic" or congenital and hereditary family hematuria; hereditary familial congenital haemorrhagic nephritis; hereditary interstitial pyelonephritis; congenital hereditary hematuria; hereditary hematuria, nephropathy and deafness; and several other variations. It is the purpose of this paper to summarize the work which has been done and to attempt a clinical, pathological, and genetic correlation, in order to establish reasonably accurate criteria for determining what constitutes hereditary nephritis.

The Problem

The study of a relatively rare, hereditary disease in man is complicated by his slow rate of reproduction and migratory habits. One of the earliest kindreds reported was investigated by three men at different times over a period of 25 years, and the investigation spanned two continents. It is fortunate that this and other clans in the total study have been more than commonly prolific.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Greer is now at the Mary Hitchcock Memorial Hospital, Hanover, New Hampshire.

Case reports span a period of nearly eighty years, from 1881 to the present. During this period, advances in diagnostic technique have rendered much of the earlier work incomplete, though not invalid. In the older investigations, tissue examination has been inadequate or totally lacking, and other techniques, such as audiometry, which would be particularly valuable in this disease, are not widely used even at present. Fortunately, much genetic information can be obtained in retrospect, and the errors of memory and hearsay tend to be minimized by statistical evaluation. Indeed, one of the best genealogical investigations in the literature was among the first reported, and has been reinforced by the efforts of two later investigators who were able to follow the family for a quarter-century.

The Clinical Disease

The clinical picture in this disease is by no means uniform, but two observations appear with sufficient regularity to require that it be investigated as a single entity: renal disease culminating in early death, particularly in males; deafness. This association is reported by Guthrie, Perkoff et al., Sohar, Meyersbach and Butler, Sturtz and Burke, Goldbloom et al., Robin et al., Goldman and Haberfelde. The types of renal disease reported fall into two fairly distinct clinical groups:

1. Those in which the disease resembles chronic glomerulonephritis, with hematuria as the outstanding clinical manifestation. This group is fur-

ther characterized by onset in infancy or early childhood, and by early death in males.

2. Those in which the prominent finding is pyuria, and in which the clinical course is that of chronic pyelonephritis.

These groups are not mutually exclusive. They are divided here only because they are so classified in the literature.

The papers of Guthrie, Sturtz and Burke, Reyersbach and Butler, Goldbloom and Habersfelde, are notable studies of the first group. Guthrie's extensive study was first reported in 1902 with the title "'Idiopathic' or congenital hereditary and family hematuria." In the kindred investigated, hematuria and albuminuria were prominent clinical features of the syndrome, but pyuria was not. Intermittent attacks of hematuria could be induced in the majority of affected individuals by eating black currants, drinking claret, and the ingestion of a number of other more common viands. In the family studied by Reyersbach, hematuria was often precipitated by any fever. Recent authors have emphasized the presence of tubule casts, and Eason, conscious of the resemblance of this disease to glomerulonephritis, suggested in 1924 that hereditary nephritis was a more appropriate term for the disease. Sturtz and Burke, in 1956, set down rigid criteria for this diagnosis, and insisted that the presence of pyuria, or of renal deaths in females, should exclude a particular case or kindred from this designation. In the reports of this glomerulonephritis-like group, the lethal course of the disease in males is striking. In Reyersbach's series, there were no female deaths, and no affected male lived beyond 29 years.

Perkoff et al. in 1951 were the first to report a large kindred in which the primary clinical findings were chills, fever and pyuria, consistent with pyelonephritis, but in which the other criteria of heritability and deafness were prominent. Their pathological studies were the first to show that although either hematuria or pyuria might be the more clinically prominent, the finding of "foam cells" in severely scarred kidneys at post-mortem examination in both groups suggested that the two clinical types were different aspects of the same entity. It is interesting that study of older reports in which the finding of hematuria was emphasized shows that pyuria occurred often, both in the same subject and in other members of the same kindred. Recent reports by Mamou and Goldman and Habersfelde also fall into the pyelonephritic category.

Deafness, first reported by Guthrie, is seen with such regularity in this syndrome that its absence must exclude a kindred from consideration. It is nerve deafness, apparently cochlear, and recent studies indicate that it is present to some degree in all affected

males and many affected females. The most severe hearing loss falls in the 500-4000 cycles per second range and may vary from 20 decibels to total deafness. Where audiometric studies have been done, it appears that while nephritis can occur without measurable deafness, the converse is not true. The nephritis usually appears first however, and may have progressed to a chronic asymptomatic stage by the time the deafness becomes manifest. The severity of the nephritis and the deafness seem not to be correlated with each other. This is particularly true of females, who can progress to total deafness without suffering severe clinical renal disease. The evaluation of this aspect of the disease depends on thorough and consistent audiometric testing, and this is lacking in most published studies. In Perkoff's excellent series, the picture is clouded by the introduction of otosclerosis into the clan by marriage in the II generation. Pathological studies, where available, have contributed little to this aspect of the disease.

Pathology

Early investigations included little or no tissue examination. The first necropsy was reported by Alport in 1927. Two brothers who had suffered from hematuria died in early adulthood within a year of one another. Post-mortem examination of one of the men showed what is described only as "a small white kidney." Because only these two members of the family were reported, and because there was no associated deafness, it is doubtful that this family can properly be considered as having had hereditary nephritis.

In 1954, Reyersbach and Butler reported a kindred of four generations and 77 souls, of which 23 had hematuria. A kidney biopsy was done on a two-year-old male of this clan who had manifested gross hematuria since birth. The biopsy showed no lesions save red blood cells in the tubules. The child continued to have hematuria, exacerbated by any fever, but of decreasing severity, and developed bilateral nerve deafness at six years. Further investigation of the same kindred revealed that a brother had died of chronic renal failure in 1940, at age thirteen. He had been deaf since age nine. Autopsy of this brother revealed shrunken kidneys with a combined weight of 100 grams. Their surfaces were peppered with yellow-orange spots which on section were related to yellow streaks which replaced most of the cortex. Microscopically, these streaks were clusters of lipid-filled cells with the general configuration and size of convoluted tubules. No tubule remnants could be found in these clusters and the authors speculated that the foam cells were fat-laden macrophages. Histochemical study showed the cells to have a high content of cholesterol and phospholipid. There was interstitial

fibrosis and lymphocyte infiltration without evidence of abscess formation. The glomeruli were strikingly involved with the characteristic lesions of chronic glomerulonephritis, including scarring and crescentic proliferation of Bowman's epithelium. Pathologic diagnoses were: (Hereditary renal disease); chronic glomerulonephritis; interstitial nephritis.

Perkoff et al. in 1951 reported an autopsy on an adolescent male in their study, deaf, who had died in uremia. The kidneys were contracted. The glomeruli were considered normal. There was a moderate diffuse infiltrate of "round cells" throughout the cortex. Dilated collecting tubules containing a "cellular" precipitate were noted, and there were many small focal abscesses in the cortico-medullary junction. These authors published a follow-up study on the same kindred in 1958, in which they presented the anatomic findings in four renal biopsies and two necropsies. Biopsies on two adolescent girls showed only slight thickening of the basement membranes in Bowman's capsule, one or two hyalized glomeruli, and a few blood cells in the tubular lumens. No inflammation was noted. Biopsies on two women of 28 showed similar changes, plus focal tubular atrophy and interstitial fibrosis, and in one subject, focal tubular and interstitial lipid deposits. Post-mortem examinations of the kidneys of two older subjects, a 44-year-old male and a 62-year-old female, showed "diffuse cortical scarring and large foci of interstitial foam cells." Glomerular changes were more pronounced than in the younger patients, and included hypercellularity, crescent formation, and hyalinization. Very little evidence for infection was found, although *E. coli* was cultured from the kidneys in one case. The authors suggested that these findings might represent the different stages in the progression of a single disease with aging. It is noteworthy that the most prominent clinical finding in these patients, and in the kindred, was pyuria, hematuria being next in frequency.

The middle and inner ears of one of these patients were examined at autopsy, but the examination was considered to be technically inadequate, and only minimal hyperostosis of the tip of the cochlea was noted. The organ of Corti was not examined.

Goldbloom et al. in 1957 reported nephritis in three siblings of a Hebrew family. The father was unaffected, but the mother, although asymptomatic, showed hypertension, albuminuria, pyuria, and hematuria. Two male children died at ages five and ten. The youngest child was found at autopsy to have evidence of severe chronic pyelonephritis with large foci of interstitial lipid-laden "foam cells" similar to those described above. A few sclerosed glomeruli were noted. Testis were absent. The second child manifested albuminuria, pyuria, hematuria and blood pressure of 145/108 at age seven. Nerve deafness was

noted at that time. He died in uremia at age ten. Post-mortem examination of his kidneys showed chronic pyelonephritis without evidence of glomerular involvement. A few scattered foci of foam cells were found. The oldest child was eighteen years at the time of this report. He had had hematuria, albuminuria, cylindruria and pyuria since eighteen months of age, and had had bilateral nerve deafness since age eleven. He had bilateral anterior subcapsular cataracts. Blood pressure was 140/100 and urea clearance was 30-40 per cent of normal.

Finally, in 1959 Goldman and Haberfelde reported a kindred of five generations in which six males had died of nephritis, five members have clinical glomerulonephritis, and five have intermittent albuminuria. Three biopsies and two necropsies are available. Biopsies were done on two females, aged seven and ten, with similar histories of glomerulonephritis. Minimal but definite abnormalities, consisting of increased cellularity of glomeruli, a few hyalinized glomeruli, and red cells and casts in the tubules, were nearly identical in both cases. One of these children had a bifid kidney on one side and a double ureter on the other. A 48 year-old male, who had suffered from diabetes for seven years, had a renal biopsy which showed chronic pyelonephritis and diabetic glomerulosclerosis. Two males, aged 43 and 36, died in renal failure with similar pathologic findings. The kidneys were small and the capsules adherent. The subcapsular surface was granular and mottled yellowish-tan, with scattered dark red cysts of 0.5 to 1.0 millimeters in diameter. The cortico-medullary junction was distinct, but the cortex was much reduced in thickness and infiltrated with tiny yellow spots. Microscopically, there was severe diffuse nephritis involving all elements. Nearly all glomeruli showed varying degrees of damage, consisting of scarring, pericapsular fibrosis, crescent formation, and cellular proliferation of the capillary tufts. There were dense focal areas of scarring and lymphocyte infiltration suggestive of chronic pyelonephritis. There was marked arterio- and arteriolo-sclerosis. Scattered foci of interstitial fat-laden macrophages were found in one case.

Inheritance

The evidence for genetic transmission of this disease is overwhelming. Its high incidence in each kindred reported suggests that the gene has high penetrance. Other aspects of the process of transmission are not so clear. There are two apparent mechanisms of transmission.

In the families reported by Dickinson, Mamou, Robin et al., and Goldman and Haberfelde, transmission appears to be consistent with that of a simple Mendelian dominant. An affected parent transmits the gene equally well to either sons or daughters, who

in turn are able to transmit the disease to offspring of either sex. It must be remembered that in all series males are more severely affected, and that female deaths from the disease are relatively rare. In Mamou's report, however, four of five affected females succumbed to the disease, and there were no male deaths. The possibility that this gene exists as a recessive, which can cause sub-lethal disease in the heterozygous combination, and is lethal when homozygous, analogous to Hemoglobin SS disease, can be ruled out by the observation that asymptomatic carriers of the disease have consistently been able to transmit lethal disease to their offspring through random mating. Analysis of Perkoff's kindred for dominance is as follows:

| <i>Total Subjects</i> | <i>Affected Subjects</i> | <i>Carriers</i> | <i>Total</i> | <i>Expected</i> | <i>Incidence</i> |
|-----------------------|--------------------------|-----------------|--------------|-----------------|------------------|
| 202 | 74 | 16 | 90 | 101 | 44.5% |

Unrecognized carriers in generation IV are not included. Their eventual recognition and inclusion might bring the incidence up to the expected fifty per cent.

There are a number of kindreds in which sex-linkage must play a part. These are reported by Kidd, Guthrie, Perkoff et al., Sohar, and Reyersbach and Butler. In these papers the affected males who had inherited the trait from their mothers transmitted it almost exclusively to their daughters, who were in turn able to transmit the disease only to their sons. This implies that the trait is inherited by the affected male on an X chromosome. He cannot therefore transmit it to male offspring. Had he received the defective gene on the Y chromosome from his father, the reverse would have been true. In the theory of sex-linkage, exceptions to male-female-male transmission can only be explained by the crossing-over of a dominant gene located on the homologous part of the X-Y chromosome. Exceptions do occur in three of the papers above, and they are extensively analyzed by Stephens with respect to Perkoff's kindred. There are six exceptions in this study. Two are males with nephritis, sons of an apparently healthy mother. Four are normal females who should have inherited the disease from their fathers. The possibility that the four daughters and two mothers concerned may all be unrecognized carriers must be considered. However, one of the normal females (III generation) has borne two normal sons, thus proving that she, at least, does not carry the trait. Haldane's test for incomplete sex-linkage is applied to this kindred as follows:

| <i>II Generation Offspring</i> | <i>Affected</i> | <i>Unaffected</i> |
|---|-----------------|-------------------|
| Sex same as that of unaffected grandparent | 18 | 4 |
| Sex different from that of unaffected grandparent | 2 | 15 |

In spite of the six exceptions listed above, this shows a high probability of incomplete sex-linkage. The total numbers may be compared directly with the 1:1:1:1 ratio which would be expected in the absence of partial sex-linkage:

| | <i>D.F.</i> | <i>X²</i> | <i>P</i> |
|--|-------------|----------------------|----------|
| Deviation from 1:1 (affected vs. normal) | 1 | 0.03 | > 0.80 |
| Deviation from 1:1 (males vs. females) | 1 | 0.64 | > 0.30 |
| Linkage deviation | 1 | 18.69 | < 0.0001 |
| | — | 3 | |

Statistically, then, simple dominance is excluded and partial sex-linkage becomes highly probable. The six exceptions are explained by the crossing-over which occurs in partial sex-linkage. In this case the cross-over occurs in every case from the X to the Y chromosome. The appearance of the phenomenon of crossing-over in this disease requires that the defective gene must be on the homologous part of the X-Y chromosome, and statistical analysis led Stephens to make this statement:

"It would seem from the above data that pyelonephritis in this kindred is inherited as a partially sex-linked dominant trait with 15.4 ± 5.8 per cent crossing-over. This would locate the gene on Haldane's chromosome map 15.4 units below the endpoint of the non-homologous section, in the neighborhood of the loci for xeroderma pigmentosum and Oguchi's disease."

Genetic studies of the deafness aspect are incomplete. Stephen's series is complicated by the introduction of otosclerosis into the kindred at II generation. When this factor is eliminated from consideration in this series, it becomes most likely that the deafness is transmitted as a sex-linked recessive, but this study actually cannot be completed in the absence of audiometric data on three or more generations.

Ocular and renal anomalies have each been reported in two series, concerning a total of eight individuals. Their occurrence is so infrequent as to be unsuitable for genetic evaluation.

The first reports in the literature were English. Perkoff's extensive kindred is traceable to Wales. Sturtz and Burke were able to trace their kindred back six generations to a grandfather born in Ireland in 1753. This led them to suggest that all cases might have a common Anglo-Saxon ancestry. However, reports by Mamou and Sohar of a French-Hebrew and an Iraqui-Hebrew family, respectively, cast doubt on such an hypothesis.

| <i>Author</i> | <i>Kindred</i> | | | <i>Clinical</i> | | | | <i>Pathological</i> | | | <i>Inheritance</i> |
|--------------------------|------------------|--------------------|------------------|-----------------|--------|---------------|----------------|----------------------------|---|---------------------|-----------------------------------|
| | GENERA- TIONS | AFFECTED/ TOTAL | ALBUMI- NURIA | HEMA- TURIA | PYURIA | DEAF- NESS | LETHAL- ITY | MATERIAL | DIAGNOSES | "FOAM CELLS" | |
| Dickinson | 3 | 12/16 | +++ | ++ | + | 0 | Mild | None | | | Simple dominant |
| Pel | 3 | 19/75 | +++ | ++ | | 0 | 4 ♂ 1 ♀ | None | | | Simple dominant (?) |
| Kidd | 3 | 8/15 | +++ | +++ | | 0 | ♂ Only | None | | | Sex-linked dominant |
| Guthrie, Hurst | 3 | 18/31 | +++ | +++ | + | 12/31 | 4 ♂ 1 ♀ | None | | | Sex-linked dominant |
| Perkoff et al. | 5 | 81/151 | ++ | + | +++ | 21/151 | 7 ♂ | 3 Necropsies 4 Biopsies | Glomerulo- and pyelonephritis | 3 Subjects (3/7) | Partially sex- linked dominant |
| Mamou et Cattani | 2 | 7/14 | +++ | ++ | + | 1/14 | 5 ♀ No ♂ | None | | | Simple dominant |
| Sohar | 2 | 10/? | +++ | | + | 7 | 2 ♂ | None | | | Dominant |
| Sturtz et Burke | 4 | 11/? | ++ | ++ | | 5 | 6 ♂ 1 ♀ | None | | | Sex-linked dominant |
| Goldbloom et al | 2 | 5/8 | ++ | + | +++ | 2/8 | 2 ♂ | 2 Autopsies | Chronic pyelo- nephritis | Both subjects | Simple dominant |
| Reyersbach et al | 4 | 27/77 | +++ | +++ | + | 16/77 | 8 ♂ | 1 Biopsy 1 Necropsy | Glomerulo- and Interstitialnephritis | 1 Subject | Sex-linked dominant |
| Robin et al | 4 | 17/32 | ++ | | +++ | 11/32 | 3 ♂ 2 ♀ | None | | | Simple dominant |
| Goldman et Haberfelde | 5 | 16/31 | +++ | ++ | + | 0 | 6 ♂ | 3 Biopsies 2 Necropsies | Atypical Chronic Glomerulonephritis | 1 Subject | Simple dominant |

The Genetic Lesion

In 1927, Alport, equating this disease with some form of glomerulonephritis, speculated that the hereditary factor was a decreased resistance to streptococcal infection. Rinkoff and Stern in 1939 suggested that the kidney itself represented a "locus minoris resistentiae" through some hereditary defect, and was thus more susceptible to local infection. Marshall, without reference to this particular disease, published the opinion in 1948 that a high percentage of idiopathic "scars of the renal cortex" could be explained on the basis of congenital renal vascular dysplasia. He cited evidence that this might also be hereditary.

Smith pointed out in 1957 that a disease which exhibits a familial pattern is probably due to one defective gene:

"Since there is evidence that a gene exerts its influence only through an enzyme, such a disease is probably related to the absence of an enzyme or the production of an abnormal enzyme. In the final analysis, therefore, the pathogenesis of the syndrome under discussion is probably related to some enzymatic defect necessary to the maintenance of the kidney, the auditory nerve, and perhaps the lens."

The Entity

In spite of the paucity of reported cases, and the considerable variation in the disease as reported by various authors, it is possible to make a working definition of hereditary nephritis, and to set down certain criteria for its diagnosis. The material reviewed here has been tabulated on the following page with respect to clinical, pathological, and genetic data. This is done to emphasize the similarity of the reports when subjected to critical analysis. From the material that is now available, it is not possible to sub-classify hereditary nephritis on a clinical or pathological basis. There may be a genetic basis for separating the entity into two groups: simple dominant and partially sex-linked dominant. The presence of "foam cells" in the kidneys of patients from otherwise dissimilar groups lends some support to the hypothesis that all hereditary nephritis stems from a common genetic lesion.

The following criteria are suggested for the diagnosis of hereditary nephritis:

1. Renal disease is manifested by onset, in the first two decades of life, of albuminuria with hematuria or pyuria. Clinical symptoms may be absent. The disease is progressive and lethal in about half of those affected, males more commonly than females.

2. There is a family history of renal disease, and investigation of several generations will reveal an incidence of the disease approaching fifty per cent in the offspring of affected parents.

3. Audiometric testing will show nerve deafness in an appreciable but at present unpredictable number of those afflicted with nephritis.

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 W. 4th Street, Topeka, Kansas.

C. P. C.

(Continued from page 315)

that a myelophthisic state occurred during the course of the patient's illness. I believe, however, that this subsided rather nicely as the Letterer-Siwe type cells regressed under therapy. With the onset of the patient's terminal illness the bone marrow responded exuberantly to the infectious process. In our opinion it was pneumonia which was the immediate cause of death.

Dr. Delp: This, of course, is a rather uncommon case. Dr. Mantz suggested an intriguing fact in that this viremia acted as a cancerocidal agent, and it does not seem, even though it was fatal, much more dangerous than x-ray and nitrogen mustards.

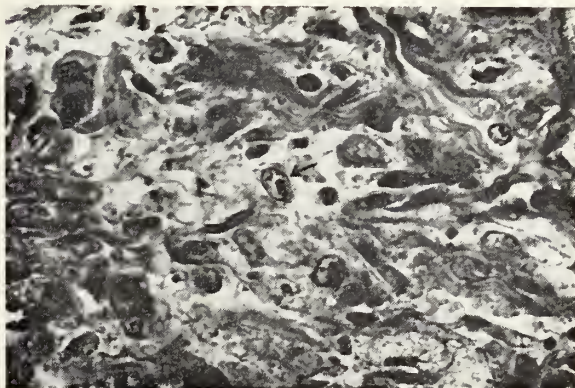


Figure 7. Viral inclusions in abnormal histiocytes in necrotic lymph node involved by Letterer-Siwe's disease.

PATHOLOGICAL ANATOMICAL DIAGNOSIS

Regressing reticuloendotheliosis (histiocytosis X), Letterer-Siwe's type involving mesenteric and retroperitoneal lymph nodes and lymphoid tissue of small and large intestine and probably involving lung, spleen and bone marrow. (History of diagnosis of Letterer-Siwe's disease established by biopsy of skin and iliac lymph node four months before death and of therapy with adrenal corticosteroids and irradiation.)

Diffuse intra-epidermal vesicular dermatitis with intranuclear viral type inclusions of epithelium (varicella).

Focal and confluent fibrinous interstitial pneumonia with varicelliform intranuclear inclusions.

(Continued on page 329)

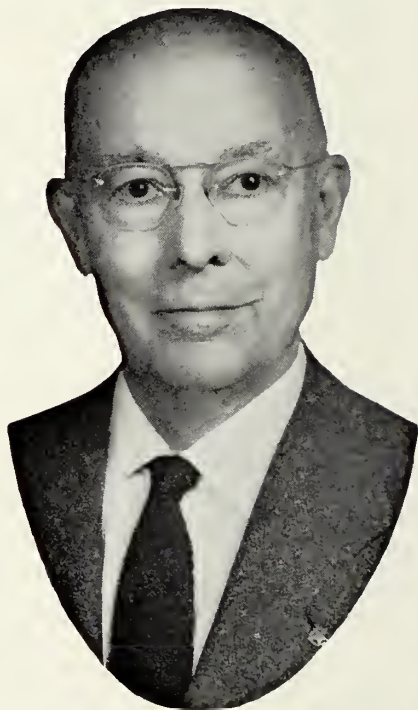
The President's Message

DEAR DOCTOR:

Our Society secures most of its ideas for changes and improvements from our Committees. It is there that our membership have the opportunity to present their ideas, hear them discussed, and perhaps worked over into resolutions, to be later presented at the Annual Session. Every good active member of the Society who is interested in organized medicine, should want to be a member of a committee, and should have an idea upon which committee he would prefer to serve; he should notify the President-Elect early. At some time during his practice years, he would probably want to serve on the committee representing his specialty, for if he is a member of his Board, he is more likely to be appointed to its Chairmanship. During a physician's active practice years, there is plenty of time for him to serve on several committees successively, and he may serve at the same time on more than one committee.

It is usually from the membership of our committees that our Councilors are chosen; lots more time and thought should be devoted to their selection than has usually been the case in the past. Their advice is sought frequently by the Officers of the Society. Nominations for office are often made from the Council, or from those who have served thereon, because of their familiarity with the affairs of the Society, its customs, and mode of operation.

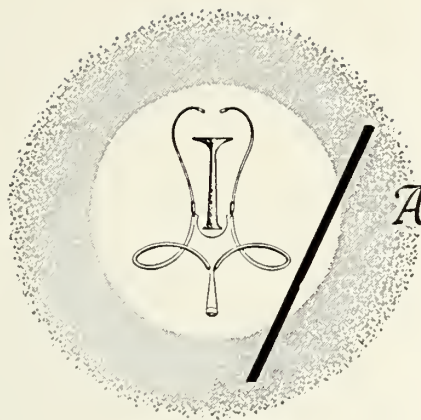
Matters needing consideration and discussion which come to the President's attention, are usually referred to the committee in whose field the matter falls. Thus a tremendous amount of work can be spread about among many committees, and no one person or committee gets into too big an overload of work. Let me urge you all to attend your committee meetings and take an active interest in what is going on in the Society.



Fraternally yours,

Harold M. Glover, M.D.

President



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

Occupational Medicine, a full-time course for physicians, will be given for eight weeks from September 8 through November 10, 1961, by the New York University Post-Graduate Medical School.

The course content covers the following areas: Preventive Medicine, including epidemiology and biostatistics, Administrative Medicine, Occupational Diseases, and Industrial Hygiene. It is aimed at meeting the need for specialized training in industrial medicine. Didactic instruction will be supplemented with field trips to industrial plants, governmental agencies concerned with industrial health and to union health centers. Opportunity will be given to attend medical, surgical, and clinical-pathological conferences held in the New York University Medical Center.

For further information write: Office of the Associate Dean, NYU Post-Graduate Medical School, 550 First Avenue, New York 16, N. Y.

A group of Doctors of the Kansas Medical Society are endeavoring the promotion of a Charter Flight to Europe in June, 1962. The round trip will be from Wichita, Kansas to Paris, France, and will cost approximately \$365.00. Those interested please write either Dr. Paul Uhlig, or Dr. John Shellito, 3244 East Douglas, Wichita 8, Kansas. It will be necessary to have a deposit of \$100 per seat before the month of September.

The next program for the family physician will be held at the Neurological Hospital, 2625 West Paseo, Kansas City, Missouri, July 30, 1961. The meeting will start at 2:30 p.m.

The theme will be "The Older Patient." Philip B. Reed, M.D., Associate Professor of Psychiatry at Indiana University, Indianapolis, Indiana will be the

discussion leader. In the evening after refreshments Dr. G. Wilse Robinson, Jr., will present the "Normal and Abnormal Pathology in the Brain of the Older Patient." M. B. Pettis, M.D. and Abraham Gelperin, M.D. will discuss "Therapies" and "Nursing Management" respectively. General discussion from the audience will follow.

All interested physicians are invited to attend. This program has the approval of the Greater Kansas City Academy of General Practice.

"Cancer Detection" will be the theme of the 15th Rocky Mountain Cancer Conference to be held in Denver, Colorado July 12-13.

This conference is sponsored jointly by the Colorado Division of the American Cancer Society and the Colorado State Medical Society.

Morning sessions will be presented in the form of panel discussions, followed by individual papers by the panel participants. The July 12 panel is "Detect Cancer in Time!—Procedures, Problems and Solutions." The July 13 panel will be on "Neoplasms of the Female Genital Tract."

Further information and program may be obtained by writing Rocky Mountain Cancer Conference, 835 Republic Building, Denver 2, Colorado.

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Editorial COMMENT

Five years ago, Dr. Thomas A. Dooley, 29 years old and just through a hitch in the Navy in Southeast Asia, turned his back on a conventional medical career in the United States and set up a small hospital in the country of Laos, on the border of Red China. To people who had never seen a doctor, or a modern drug, or a hospital, he brought all three. Working with a few like-minded Americans who volunteered their services, Dr. Dooley buried himself in the jungle of northern Laos, emerging now and then to raise more money for more supplies. In spite of bouts with his own illness, he also helped found an international medical assistance organization called MEDICO, which has been establishing and supporting medical centers like Dr. Dooley's in other parts of the world.

Many of us, looking around at the comforts of civilization, the joys of home and family, wonder what makes a man spurn these pleasures for physical discomfort, backbreaking work, the company of misery and the constant challenge of an almost impossible job. We ourselves wondered whether he regretted his choice or whether he would urge it on others. What would he say to a young doctor just starting out? What would he say to all of us who weigh the choices of life?

About six months ago, we asked Dr. Dooley, already ill with cancer, which proved fatal, to write a letter to a young physician which we could publish in THINK. We asked him to consider all the questions we have raised above and to counsel the young doctor on some of the tough problems he faces.

At his hospital in the hills of Laos, Dr. Dooley wrote such a letter for us. We publish it, in this issue, with great pride. We challenge anyone to read this extraordinary testament without being stirred to look searchingly at the values that control his own life.

—THE EDITORS

Letter to a Young Doctor *Dr. Thomas A. Dooley*

Young Dr. Dooley (he was only 34 when he died) was one of the world's 10 most admired men, according to a 1960 Gallup poll. He was co-founder of MEDICO (Medical International Cooperation Organization), and a best-selling author. He was the youngest officer in U. S. Medical Corps history to receive the Legion of Merit award, and first American to be decorated by the Kingdom of Laos.

Village of Muong Sing
Kingdom of Laos

Dear Bart,

It is far past midnight. I am sitting at the table in my house at Muong Sing, high in the foothills of the Himalayas in northern Laos. The kerosene pressure lamps overhead are hissing at me, and the wind is lashing down my valley. It whips the palm and frangipani. All the earth on this sad cut of the world seems flooded in the monsoon rains. This is the season of the crashing violence of the tropical storm. The crickets, frogs and wilder jungle animals screech and scream. The high Lao night land is not calm.

But I feel very calm in writing to you. I feel as though I have just met you outside of the medical school auditorium. May I thrust my hand out and say, "Congratulations, Bart. Congratulations on your graduation from medical school. Congratulations on being a doctor." But along with my congratulations, I also want to inject into your mind some thoughts to mull over during your coming year of internship.

Four years of medical school are behind you. "What is past is prologue." You have been given much by parents and teachers. Use it wisely, for others. You have worked hard and learned a good deal, but be-

Editor's Note: This article is reprinted here by permission of MEDICO, Inc. The original copy of these articles appeared in February, 1961, issue of THINK Magazine.

cause you are out of the stress of the doing does not mean that you are yet in the peace of the done. You will never be.

As a doctor, you have a tremendous potential. There are a lot of glorious things ahead of you, if you choose to choose them. I know this very well, though only six years ahead of you in time of practice and age of life.

Know that this passing and precarious time in history will demand much of you. It will maroon the hesitant, but inspire the brave. Stand up and shout, "This is my time and my place in this time!" And seek that place. The state of total gratification is for cows, possibly for birds, not for man. Seek greater things than the material.

Do not aim for just a certain socio-economic position in society. Seek something beyond the split-level ranch house and the two-car garage. Become supremely aware of and intimately involved in the great issues of your day. You have the potential for great deeds, and today demands deeds. Human deeds. Principles enunciated and hopes expressed are not enough. Remember this.

You are a doctor. The proud state of being a doctor is a joyful thing. There is a lot more to you than just the knowledge of bugs and drugs. All the information you have acquired has certainly distilled itself into certain beliefs. Your beliefs may be scattered, rough and unclassified, but you do have them. You are well trained. Your hands are keen, your mind incisive, your sensitivity deep, your vision well honed. You are aware of the sadness of mankind. You know the physiognomy of pain, and, accordingly, the quality of mercy. You know the power of drugs and understand the importance of the "patient who has a sickness" rather than the "sickness that is in the patient." You have a capability to know the pain and glory of other men.

You possess more than knowledge of the healing art. You can do more than laboratory experiments and herniorrhaphies. The greatest attribute of you is that indispensable and essential aspect of your human spirit. Learn how to utilize the fiber and core of your heart.

There is a great deal more to living than just existing. Believing is a fine thing, but placing those beliefs into execution is the real test of strength. The state of being a doctor is a happy one, a lofty one, and one filled with tremendous potential for good. You commit a sin of omission if you do not utilize all the power that is in you. Seek a way to practice your art of medicine, utilizing all the deepest powers of your belief. As a doctor, you must be a part of your time. Isolation and indifference in world affairs are completely past and over. You can no longer be just a doctor or just a researcher or just a teacher. All men

belong to me. All men have claims on man. And to the man with special talents, this is a special claim. This is your challenge. It is required that man take part in the actions and passions of this time at the peril of being judged not to have lived at all. You are qualified not only to take part in, but perhaps to lead in the actions of a segment of the world today. A doctor's job is to cure sometimes, to relieve often, and to comfort always.

You must utilize, along with your medical talents, the powers of your spirit and heart. This will help to buttress up the fragile peace of the world.

Bart, you've a year's internship ahead of you. And after that, the choice of a residency for specialty training or private practice. I know you have been plagued with some indecision, "Shall I be a specialist with years and years of more training, or shall I go into private practice now?"

I am going to presume that you will choose the life of a general practitioner. There is a place in the world for specialists (speakeeth the young G.P.), but this battered, beaten world of ours needs a few more country doctors in a few more countries and villages, too.

As a general practitioner, where will you practice? There is a need for you every place. But the world is lopsided in its distribution of doctors. Almost all corners of America have available doctors. With veterans' benefits, Social Security, labor union programs, industrial group health plans, and all the others, there is hardly a citizen who cannot find medical attention if he is willing to make some little effort.

I live in Laos. This valley, prior to our Medico hospital, had nothing but black magic, necromancy, witchcraft, clay images, sorcery and betel juice. The villagers wallowed in monkey's blood, cobwebs, tigers' teeth and incantations. They never had hope, much less help. Today, the people of Muong Sing have good medicine, compassionate help, training and a fine little 25-bed hospital. Twentieth century.

You know the world's statistics. The Congo, 13,000,000 people and not one native doctor. South Viet Nam, 11,000,000 people, about 180 doctors. Cambodia, 5,000,000 people, seven doctors. Laos, 3,000,000 people, one Lao doctor. Other nations' statistics are equally staggering.

Though this is sometimes called "the age of the shrug," I do not believe you would say, as some do, "So what, it's not my problem." You know, Bart, you and I are the heirs of all ages. We have the great legacies of music, art, literature and our own medicine. We have been born and raised in freedom. We have justice, law and equality. But we have overlooked the uglier side of our inheritance. We have also the legacy of hatred, bred by careless men before us. We have the legacy of abuse, degradation, and the in-

humanity of men blinded by prejudice, ignorance and personal spleen. To people like you and me, richer in educational opportunities than many, this is a special legacy, and a challenge. To accept the ugly as well as the beautiful and to answer this challenge is a privilege and a responsibility. Accept it without fear.

Bart, I personally believe that the unique aspect of this challenge to young doctors demands that we invest some of our lives in the practice of medicine in foreign fields. I say "some," not a lifetime. This is not expected of us. But we can give a year or two. It can be part of the maturation of a man, the metamorphosis of a doctor.

You went through college, medical school, clerkship; internship lies ahead, maybe residency, and then . . . come to the developing nations of the world for a while. Bring your gadgets, and the armamentarium of drugs, to be sure, but most of all bring your human spirit. Bring your youthful enthusiasm, your drive, your energy, your dedication to help the sick. Bring your wonderful spontaneity, your belief in the good and the right. Bring along a sense of humor, don't forget it; you'll certainly need it when the roof leaks, the patients eat all the pills the first dosage, and the witch doctors put cow dung over your sterile compresses. Bring also a few cents' worth of the spirit of adventure that our founding fathers possessed. Spend some time in valleys like Muong Sing. Invest some of your life to answer personally the challenge of today, your legacy, your heritage.

It is more difficult for other professions to enter and work in a foreign country. Citizens and governments are suspicious . . . as they are even a bit suspicious of the doctor. (There are some who are not yet convinced that I am not an agent of the FBI or a Jesuit-in-disguise.) But your M.D. diploma does open many doors. You will be allowed to come to these underdeveloped areas and build your small hospital. You can cure sometimes, relieve often, and comfort always. Splash some of the warmth and goodness of your human spirit on people who heretofore knew little of this element in the Western man. My villagers' lives were just one great groan of agony before the Medico hospital was built. They knew only Western men bent on colonizing them, and perhaps exploiting what little they had.

Your medicine will have a twofold effect. You will find that by just being a doctor with qualities of the human heart, you will help to unify men. Simple humanity makes the primitive lands of Asia and Africa important to every American. Simple self-interest makes it vital.

You are probably thinking, "Tom, hate to sound this way, but what's in it for me? We are all a little selfish, you know." Right you are, Bart. Perhaps we should be a bit wary of the man who is completely

unselfish. There is a great deal "in it" for you. By investing a portion of your life for work here, by depositing a year or two of your time you will take back with you into private practice a great sense of accomplishment, coupled with a vast human experience. Your accomplishments will be on a wider scope; along the broad horizons of peace for the whole world. You will always know that you have given a fragment of your life for the good of many.

All men yearn to lose themselves in something greater than themselves. You will have done this, and will have helped to achieve that unquenchable promise that someday all men of all races will learn to live together in peace. I do not believe this fulfillment is achievable in private practice.

You've always been a bit of a cynic. I imagine you are quietly snarling, "Okay, Tom, you've made your point, but to give up a year or two for a spiritual thing called 'fulfillment,' don't know 'bout that."

I can only remind you that the history of mankind constantly repeats the exclamation that the only way man can achieve his own happiness is to strive for the happiness of others. And you reply, "Ugh, Dooley's murky mysticism again." History also proves, Bart, that men rarely learn from the teachings of history, but must learn for themselves. Come to Asia, Learn.

There are programs in the world with which you could work. Programs like the World Health Organization, our own Medico, and others. These will pay you enough to keep you out of debt (though perhaps not much more). They will handle the mechanics of medical procurement and supply. Medico, you know, from a kernel of an idea in 1958, now has 17 hospitals, clinics and programs in 12 different nations. Dozens and dozens of doctors like you. Free next year, Bart?

Today demands a deeper emphasis on the brotherhood of man. All professions must seek ways to do this. For the doctor it is not a difficult thing. It is in the root of the tree of a doctor to understand and believe in brotherhood. This concept was not so important in the times of our fathers. It is now. The Brotherhood of Man exists as definitely as does the Fatherhood of God. And we must not forget it.

I do not believe "brotherhood" is a sentimental, mushy-mouthed hyperglycemic thing. It is a potent, mighty force to bring men together as men. We are not as actively engaged in solidifying this idea as we should be. Doctors know the likeness of all men. The world does not need another union of white men, or of American men, or of Dutch men, or of Negro men. Or more fragmentation of peoples into endless exclusivisms. Brotherhood should be a force to unite men . . . as men.

Patriotism is not enough, either. Nations must belong to a larger world, with a wider horizon than that

of any single country. Countries working together, each giving something to the other . . . this is part of brotherhood. Asia and Africa need picks and shovels, bulldozers and syringes to remove the high cliffs of poverty, injustice and sickness. You as a doctor have those syringes. We just do what we can, as individuals, to help other individuals.

We young Americans must take the drama of our freedoms (from diseases as well as from tyranny) that we have received from the past and project it into the future. For other men. We who have it must help those who do not have it.

The kerosene is running out of the lamps and they the sputtering and flickering. Dooley needs to hit the sack, so I'll stop the letter just now . . . and continue it tomorrow.

A full day has passed since I began this letter to you. At the clinic this morning we had 78 patients. Everything from a blazing malaria to a man who brought his donkey, requesting that we suture up a laceration in its flank. We gave the malaria patient chloroquine, and sutured the laceration in the donkey's posterior with chromic catgut, size 2 (tough ass).

Some children had diarrheas, eye inflammations, and one had a case of head lice. My American corpsmen pulled some teeth (dentistry is not for me). The kids howled just like they do in America. The old gals complained about having to wait in line, just like they do in America. A few of the older gents wanted some "vigor pills," just like . . . well, anyway. There are no really deep differences between people. I have spent six years of my life among different men, and always I find the similarities outweigh the differences. Each life is infinitely precious as a life. Everywhere.

To recapitulate what I've written, Bart, I believe that as a young doctor, as soon as you finish your internship, you should spend a year or two in lands such as Laos. You should utilize your profession and your heart as a cable to bind men together. Danger cements men; why can't other forces be used? Many tools must be implemented to destroy the false walls that separate us. Medicine is one. Medicine when enveloped in that indispensable element of the human spirit. Kindness and gentleness are daily instruments of the doctor, more than of other professions. Kindness and gentleness can be potent weapons to fight against the anger of the world.

The world is made up of persons. Internationality is only a conglomeration of individuals. All individuals yearn for something human. This flings a special challenge to you as there is no more intimate person-to-person relationship than that of the doctor and his

patient. Bring the talents of your degree, and the spirituality of your heart, to distant valleys like mine. And take back with you a rich, rich reward.

Dedicate some of your life to others. Your dedication will not be a sacrifice. It will be an exhilarating experience because it is intense effort applied towards a meaningful end.

So along with my congratulations on your graduation I send my wish that you will utilize yourself as a force of unity in the fragile peace of today. And that you will know the happiness that comes of serving others who have nothing.

Sincere best wishes always,

TOM

C. P. C.

(Continued from page 323)

References

1. Otani, S. A.: A discussion on eosinophilic granuloma of bone, Letterer-Siwe disease and Schuller-Christian disease. *J. Mt. Sinai Hosp.* 24:1079, 1957.
2. Haggerty, R. J., and Bly, R. C.: Twelve fatal cases of varicella in cortisone treated children. *Ped.* 18:160, 1956.
3. Findley, G. M., and Howard, E. M.: The effects of cortisone and adrenocorticotrophic hormones on poliomyelitis and other viral infections. *J. Pharm. & Pharmacol.* 4:37, 1952.
4. Johnson, H. D.: Visceral lesions associated with varicella. *Arch. Path.* 30:292, 1940.
5. Newman, W., and Southan, C. W.: Virus treatment in advanced cancer. *Cancer.* 7:102, 1954.

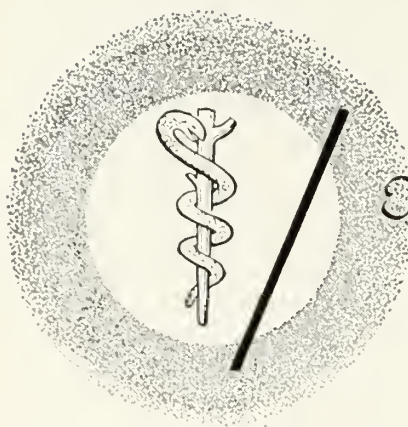
It was the vigorous pronouncements Jesus made on controversial matters that sent Him to the cross. If He had confined Himself to little Mickey Mouse morals, He would never have been heard of.—*Dr. Edwin T. Dahlberg*

Those who cannot miss an opportunity of saying a good thing are not to be trusted with the management of any great question.—*William Hazlitt*

When you have found out the prevailing passion of any man, remember never to trust him where that passion is concerned.—*Lord Chesterfield*

. . . no man is entirely unmoved by being asked for information upon his particular subject. . . .
—*Lord Dunsany*

In skating over thin ice our safety is in our speed.
—*Ralph Waldo Emerson*



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

SOURCE OF DOCTOR SUPPLY

A while back it was discovered that some of the foreign physicians seeking internships and residencies in American hospitals were below the standard set for American medicine. A more rigid screening program was instituted. On April 4 examinations were given at 132 centers in the United States and abroad.

Results of these tests happily promise a good increase in the number of physicians and internes available in this country. Of the 5,326 who took the examination, 2,063 got grades high enough for full qualification and another 1,646 are provisionally qualified and will be permitted to study until they have increased their knowledge and techniques.

This is double the number of qualified foreign doctors found in try-outs a year ago and gives promise that there will be a steadily increasing source of supply abroad. It does not cancel the necessity of more medical training of Americans to increase the doctor supply enough to keep pace with population. But it helps.—*Wichita Eagle*, May 27, 1961.

DOCTORS FACE AN ISSUE

The proposal to finance health care for the elderly through higher social security taxes waxes hot and heavy. The Kennedy administration supports the measure while the American Medical Association opposes it.

It has been mentioned before that doctors, including your family doctor, haven't depended on the printed word to any great extent as a public relations outlet. There has been no important reason for medical doctors to come to their own defense.

On the other hand, politicians have never avoided the printed word. In fact they offer publications a huge supply of publicity. When the chips are down

the politician is out in front with his public relations and know-how. The medical doctors are feeling for the first time the stinging scratches that words can make on their tender hides. Even Walter Reuther's union is submitting handouts to the press favoring the health program.

Slowly the doctor is toughening-up to the attack. He's building new defenses and in time will take the offensive. It's difficult to tell a physician he should be in the public eye. This time he has to be to save his own hide from socialism.

One move in the right direction came from the Jefferson County (Ohio) Medical Society when it tossed a terse reminder to the public by way of an advertisement in the *Steubenville Herald*, a newspaper of 30,000 circulation.

The doctors did not use the advertisement to argue the issue. Instead they bluntly stated in big type: "We know of no one who has been denied medical care because they could not afford it." Then came an offer to reply to that claim. "Any expression of opinion is welcome," the ad said and gave a box number to write.

After a month the medical society had received two replies. One letter complained about the length of time that had to be spent in a relief office. The other was from a man whose wife was hospitalized at the time he wrote.

It would appear that if the health of the elderly is in such a horrible state there would have been thousands of letters stating cases. These would come not only from the elderly, but from members of the family and citizens who were generally concerned.

Like so many proposals that stem from the political brain center, this health plan is supposed to have appeal if the public can be persuaded to generate

(Continued on page 347)

Official Proceedings

Conclusion of the report of 1961 meeting of the House of Delegates

The transactions of the 102nd Annual Session were published in the June issue of THE JOURNAL and will be concluded here.

Included are all resolutions in numerical order as they were adopted by the House of Delegates. Eliminated from the minutes as preserved in the executive office are such things as who made the motions, the discussion, amendments, and the many formalities of the meeting. Since these do not reflect Society policy, the proceedings will list only the resolutions in the form in which they were adopted.

In several instances two or more resolutions were applied to similar subjects. These were combined by reference committees into one. A few resolutions were not adopted. Those are not recorded in this report.

RESOLUTION NO. 32

General Practice Awards

Be It Resolved: That subject to the approval of the House of Delegates of the Kansas Medical Society and the membership of the County Medical Societies of the State of Kansas, an Award be established known as "The Practitioner of the Year Award," and that same Award be presented to one or more outstanding physicians each year. The means and basic qualifications necessary for selecting such nominees for this Award to be determined in the future.

RESOLUTION NO. 33

WHEREAS, in this nation it has always been the responsibility of the individual to provide for his own health care, and

WHEREAS, this is held to be a privilege, and

WHEREAS, the cost of such care at times presents an economic crisis to the individual, and

WHEREAS, the Congress of the United States, recognizing the above, passed the Kerr-Mills Bill which will provide federal grants to states wishing to aid persons over 65 years of age who lack the resources to pay for their health services, and

WHEREAS, this is in keeping with the tradition upon which this nation was founded,

Therefore Be It Recommended that the State of Kansas create a program whereby benefits under the Kerr-Mills Bill may become available to the eligible citizens of this state.

RESOLUTION NO. 34

Committee on Gerontology

WHEREAS, the best argument against Federal intervention in health care for the aged is in the proof that such intervention is unnecessary, and

WHEREAS, there has not been an adequate compilation of services and facilities available to persons of 65 years of age of Kansas, therefore

Be It Resolved that the Committee on Gerontology be authorized to proceed with a survey to determine the availability of health care to persons of 65 years of age and over, and

Be It Further Resolved that other statewide organizations interested in the subject be invited to participate in this survey, and

Be It Further Resolved that when the information is obtained, a full report will be made to the Council which shall determine if the information should be published.

RESOLUTION NO. 35

Committee on History

Be It Resolved that the membership cooperate in the various community celebrations of the Kansas Centennial in such a manner as they may approve such as, floats, pageants and speeches that depict the pioneer doctor of medicine.

RESOLUTION NO. 36

Committee on History

Be It Resolved that the book *The Kansas Doctor* be placed in as many libraries in Kansas as possible and if possible to be in memory of some of the older physicians of that community.

RESOLUTION NO. 37

Committee on History

Be It Resolved that an effort be made to stimulate interest in the medical students at the University of Kansas in the "History of Kansas Medicine" by offering an annual award to the students submitting papers on that subject if the paper dealt with a Kansas physician or a member of the University of Kansas School of Medicine faculty and that these

papers be placed in a special file in our central office—this award to be in addition to the Guffey Awards that are now given for this subject, and that the Council be directed to make a final decision on this subject.

RESOLUTION NO. 38

Committee on Hospitals

WHEREAS, two (2) years ago the House of Delegates approved the formation of the Kansas Voluntary Advisory Commission to establish professional standards for the small hospitals of this state, and

WHEREAS, this project has been approved by the Kansas Hospital Association, and

WHEREAS, the Kansas Hospital Association wishes to add to these a set of standards for services other than professional which have not yet been accomplished, therefore

Be It Resolved that the Committee on Hospitals be authorized to continue negotiations with the Kansas Hospital Association in an effort to complete this project, and

Be It Further Resolved that the standards for professional services as previously approved by this Society be now submitted to the hospitals of Kansas and to the chief of staff of each hospital in the state with the invitation that they voluntarily subscribe to these principles at this time.

RESOLUTION NO. 39

Committee on Industrial Medicine

WHEREAS, the Commissioner of Workmen's Compensation in Kansas has requested Kansas Medical Society cooperation in incorporating the current Relative Value Studies into a revised Workmen's Compensation Manual, and

WHEREAS, the Committee on Industrial Medicine has gone on record as favoring a \$5.00 point value to the Kansas Relative Value Studies for use in Workmen's Compensation cases

Be It Resolved that the Kansas Medical Society endorse the revised 1961 Kansas Relative Value Studies for use in the new Workmen's Compensation Manual with a point value of \$5.00 as the factor for determining the fees in compensation cases, and

Be It Further Resolved that the Society Committee on Industrial Medicine and the Executive Staff be authorize to assist and cooperate with the Commissioner in every possible way.

RESOLUTION NO. 40

Committee on Medical Economics

WHEREAS, the Kansas Medical Society Committee on Medical Economics is charged with the respon-

sibility of overseeing all phases of the Society's various group insurance programs, and

WHEREAS, there is at all times the possibility of a misunderstanding between an individual member of the Society and an insuring company or soliciting agency, and

WHEREAS, the Society desires to protect the interests of any member covered under a Society sponsored insurance program

Be It Resolved that the Kansas Medical Society endorse the requirements that any difficulty between a member of the Society and an insuring company or soliciting agency be reported to the Executive Office by the company or agency involved in order that the difficulty may be referred to the Medical Economics Committee and the Executive Committee for consideration.

RESOLUTION NO. 41

Committee on Medicare

WHEREAS, 95 per cent of persons eligible under the Medicare program have an annual income of \$3,000 or less, and

WHEREAS, the National Medicare Program is founded on the premise that professional services shall be reimbursed at usual charges for persons of low income, and

WHEREAS, the Kansas Medicare contract comes up for re-negotiation in July of this year, and

WHEREAS, Medicare pays the expenses for three (3) persons to Washington for the purpose of negotiating such a contract

Be It Resolved that the president and whoever he designates to accompany him, together with one representative from Kansas Blue Shield, be authorized to negotiate this contract, and

Be It Further Resolved that the fee schedule shall be determined by the Kansas Relative Value Studies with a point value approximating Blue Shield Plan B.

RESOLUTION NO. 42

Membership Orientation

WHEREAS, new physicians in Kansas often lack information concerning health resources, health regulations and services available to the physicians through the Kansas Medical Society, and

WHEREAS, this committee has assembled material on this subject

Be It Resolved that packets of such information be distributed to each councilor with the recommendation that he give one to each new physician as he enters practice in the individual councilor's district, and

Be It Further Resolved that such material shall be assembled at little or no cost to the Kansas Medical Society through the utilization of existing printed documents, to be supplemented by mimeographed material prepared by the Committee.

RESOLUTION NO. 43

Committee on Mental Health

WHEREAS, Senate Bill 212, as passed by the 1961 Kansas Legislature places under the Board of Social Welfare the supervision of all mental health activities of this state, and

WHEREAS, House Bill 125, authorizes communities to create mental health clinics, therefore

Be It Resolved that Committee on Mental Health be authorized to work closely with the Division of Institutional Management of the State Board of Social Welfare and with the Kansas Mental Hygiene Society in the organization and operation of such clinics, and

Be It Further Resolved that Committee on Rural Health be directed to inform the component societies of this state of its recommendations in the establishment of such clinics, and

Be It Further Resolved that the Committee on Mental Health be directed to give assistance to component medical societies wishing to implement such clinics.

RESOLUTION NO. 44

Committee on Mental Health

WHEREAS, the mental health program of Kansas has been placed under the direction of State Board of Social Welfare

Be It Resolved that the Committee on Mental Health be authorized to work with the Division of Institutional Management in the preparation of a commitment act to be submitted to the 1963 Kansas Legislature.

RESOLUTION NO. 45

Committee on Pathology

WHEREAS, the Committee on Pathology and other interested physicians attempted to pass a revision of the Coroner's Law, and

WHEREAS, the reasons this failed to pass now appear to be understood, therefore

Be It Resolved that the Committee on Pathology be authorized to prepare a revised Coroner Bill, and

Be It Further Resolved that this Committee, together with other members of the Kansas Medical Society, shall meet with the following organizations as often as may be necessary to obtain their endorsement: the Kansas Official Council, the Kansas Fu-

neral Directors Association, and the Kansas Bar Association, and

Be It Further Resolved that the Committee on Pathology be authorized to meet with individuals who might have a special interest in this subject, and

Be It Further Resolved that when such proposed legislation has been prepared to be submitted to the Council and that when the Council so approves, each component medical society be provided with this material and be requested to enlist the support of interested local organizations in visiting with members of the Kansas Legislature prior to the opening of the 1963 Session.

RESOLUTION NO. 46

Committee on Post Graduate Study

WHEREAS, the graduate education programs provided through the University of Kansas School of Medicine are increasing in popularity, and

WHEREAS, the Committee on Post Graduate Education has as its primary function the stimulation of such effort

Be It Resolved that the Dean of the School of Medicine be advised this Committee will assist him in the planning and preparation of such programs, and

Be It Further Resolved that the importance of this work makes it appear advisable that at least two (2) meetings be held annually with the Medical School, one of which would be in the fall and one in the spring.

RESOLUTION NO. 47

Public Policy

WHEREAS, the American Medical Association has established "Guides for Conduct of Physicians in Relationships with Institutions," adopted December, 1951, and reaffirmed December, 1959, and

WHEREAS, the American Medical Association has established "Principles of Medical Ethics" as adopted June, 1957, and

WHEREAS, it is a matter of concern to the Kansas Medical Society that violations of these principles occur, and

WHEREAS, the Kansas State Board of Healing Arts has recently stated that, "Hospitals in Kansas are not authorized to engage in the practice of Healing Arts as defined by the Kansas Healing Arts Act, and that all professional services performed in the practice of the Healing Arts must be performed by or under the supervision of a duly licensed practitioner," and

WHEREAS, the practice of medicine in any of its specialties by any hospital, corporation or lay body, whether for profit or non-profit, is undesirable, therefore

Be It Resolved, that the Kansas Medical Society endorses these actions and opinions and that it shall be the policy of the Kansas Medical Society that, "a physician should not dispose of his services under terms or conditions which tend to interfere or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration of the quality of medical care," and that "a physician should not dispose of his professional attainments or services to any hospital, corporation or lay body by whatever name called or however organized under terms or conditions which permit the sale of the services of that physician by such agency for a fee," and

Be It Further Resolved, that these resolutions do not refer to remuneration of a physician for teaching, research, charitable service, administration and supervision of health services of a corporation, administration or government service. A corporation or lay agency properly may provide such services and employ or otherwise engage physicians for these purposes, and

Be It Further Resolved, that professional services shall, and hospital services shall not, include the practice of pathology, radiology, anesthesiology, physical medicine, or any other medical specialty as defined by law and the Kansas Medical Society, and

Be It Further Resolved, that services performed by a physician and the technical staff under his supervision shall be recognized as professional service and identified to the patient as such. The fees established for professional service and collection of said fees are the responsibility of the physician; however, if mutually agreeable, the hospital and/or clinic may act as collecting agent. The amount paid to or otherwise retained by the hospital for space, equipment, collections, or other expense related to the department used by the physician(s) is a matter to be agreed upon by the physician and the hospital.

RESOLUTION NO. 48

School Health Committee

WHEREAS, the American Medical Association Committee on school health, the National Education Association Committee on school health, the American Academy of Pediatrics Committee on school health, and other authoritative organizations have recommended that interscholastic competition in junior high schools and elementary schools be discontinued. The School Health Committee of the Kansas Medical Society recommends that the Kansas Medical Society adopt a policy recommending the abandonment of interscholastic competition at the junior high and elementary level.

RESOLUTION NO. 49

Committee on State Meeting Format

WHEREAS, the State Meeting Format Committee met in Salina during the Summer of 1960, to plan meetings for the next two (2) years

Be It Resolved that the 1962 Annual Session be held in Kansas City, Kansas, April 30-May 2, and that the general schedule of the 1961 annual meeting be followed for 1962, and

Be It Further Resolved that the Wyandotte County Committee explore the possibility of the use of live television for a portion of the scientific meeting, and

Be It Further Resolved that the 1963 Annual Session be held in Salina, May 6-8.

RESOLUTION NO. 50

Special Committee on Diabetes

WHEREAS, this committee was appointed for the first time this year and the following recommendations represent new Society policy

Be It Resolved that the medical profession in local areas of Kansas unite with allied professional groups in their area to form local Diabetes Associations and when such organization is completed, lay persons from the community be invited to participate with them, and

Be It Further Resolved that local Diabetes Associations should be urged to participate in group discussions directed toward public information but that no effort at treatment should ever be considered by such associations, and

Be It Further Resolved that a letter be sent by this Committee to the secretaries of each component society in Kansas recommending their participation in the organization of a local Diabetes Association and offering, if they desire, the services of the Diabetes Committee in assisting them with the details of organization.

RESOLUTION NO. 51

Special Committee on Diabetes

WHEREAS, the detecting of the presence of Diabetes is the practice of Medicine

Be It Resolved that diabetes detection drives in any community shall be approved by the local medical society and medical leadership shall be provided by the society before such drive is started, and

Be It Further Resolved that the Committee on Diabetes be authorized to recommend to each county medical society the establishment of periodic local detection services.

RESOLUTION NO. 52**Special Committee on Kansas Health Facilities Information Service**

WHEREAS, the Kansas Medical Society has co-operated with the Kansas Hospital Association, and

WHEREAS, Dr. F. E. Wrightman, president, and Dr. Glenn R. Peters, immediate past president, and the Executive Secretary have represented the Medical Society in this project, and

WHEREAS, there is a report mimeographed on this subject in the hands of the members of the House of Delegates

Be It Resolved that the Kansas Medical Society become a charter participant in the incorporation of the Kansas Health Facilities Information Service, Inc., and

Be It Further Resolved that the substance of the By-Laws as recommended be approved, and

Be It Further Resolved that the Council select the Kansas Medical Society voting member to this organization, and

Be It Further Resolved that the Council be authorized to decide whether a financial contribution shall be made to this organization which, if decided in the affirmative, shall not be more than \$500.00.

RESOLUTION NO. 53**Special Committee on Treatment of Narcotic Addicts**

WHEREAS, the treatment of narcotic addicts by confinement in a drug-free hospital under compulsory civil commitment may be the preferable present method of treating narcotic addiction, but

WHEREAS, if this is the only authorized mode of treatment it would preclude research and exploration that might lead to the discovery of new and more effective treatment, and

WHEREAS, it is well recognized that no present method of treating the narcotic addict is completely satisfactory, therefore

Be It Resolved that the Kansas Medical Society generally endorses hospital confinement for the narcotic addict and recommends that additional federally operated hospitals be constructed for this service as may be needed, and

Be It Further Resolved that penalties, especially those for the unlawful selling of narcotics, be greatly increased, and

Be It Further Resolved that the treatment of a narcotic addict is an individual problem as is the medical treatment of any other condition and that no arbitrary statement of policy endorsing only one mode of treatment to the exclusion of all others can be accepted as a sound medical policy, and

Be It Further Resolved that continued research be conducted to discover more effective methods of treatment which in this instance is especially important because current methods of treatment are notoriously inadequate, and

Be It Further Resolved that every possible opportunity for rehabilitation of the narcotic addict be made available to him, and

Be It Further Resolved that the Kansas Medical Society assume leadership in this state for increasing education on this subject especially among the professional schools and in the societies of Medicine, Dentistry, Nursing and Pharmacy, and

Be It Further Resolved that this resolution be introduced by its Kansas Delegates at the House of Delegates of the American Medical Association.

RESOLUTION NO. 54**Special Committee on Podiatry**

WHEREAS, the podiatrists of Kansas are examined and receive their license from a board consisting of a licensed podiatrist and two licensed doctors of medicine, one of which shall be the secretary of the Healing Arts Board, and

WHEREAS, a Kansas license in podiatry requires a minimum of one (1) year college and four (4) years education in an approved school of podiatry which is affiliated with one approved school of medicine, and

WHEREAS, a podiatrist is permitted to treat conditions below the ankle except that "no podiatrist shall amputate the human foot or toes, neither shall any podiatrist administer any anesthetic other than local . . .," and

WHEREAS, in such practice the podiatrist is authorized the use of all drugs including narcotics, if the treatment is for a condition occurring below the ankle, and

WHEREAS, the American Medical Association through its Judicial Council has ruled podiatry to be not a cult and that doctors of medicine may ethically consult with podiatrists and teach in their schools, and

WHEREAS, some items of care legally given by podiatrists are listed among benefits for which Kansas Blue Shield members are entitled to coverage, and

WHEREAS, the Blue Shield plans in some states pay such services to podiatrists and at least one national contract in which Kansas participates, the coverage for Federal employees, includes payment for podiatrists' services, and

WHEREAS, it is believed some of the above information may not have been known when the Blue Shield Board and the House of Delegates acted upon this question, therefore

Be It Resolved that the Council consider the question in the light of the above information and, if agreeable, re-submit the proposition to the next session of the House of Delegates, and

Be It Further Resolved that the House of Delegates vote upon the proposition to authorize the Kansas Blue Shield Board to receive from the podiatrists of Kansas a list of procedures they wish to perform for Blue Shield subscribers and that the Blue Shield Board then determine, without opposition from the Kansas Medical Society, which, if any, procedures can comply with the benefits in the subscribers' contract and within the practice privileges authorized under the podiatrists' Kansas license, and

Be It Further Resolved that the Blue Shield Board then determine, without opposition from the Kansas Medical Society, which, if any, of the procedures so determined shall be paid when performed by podiatrists.

RESOLUTION NO. 55

WHEREAS, the duties of the Executive Staff Officer of the Kansas Medical Society have greatly increased in scope and importance as a state and national position representing the organized medical profession of the State of Kansas, and

WHEREAS, there is a growing trend in major medical organizations to use such titles as Executive Director, etc., for their chief executive staff officer, and

WHEREAS, the duties of the Kansas Medical Society Executive Staff Officer, as described in the By-Laws of the Society, Chapter VII, Section 7, are those of an administrative officer in charge of directing and discharging the charges of the Society, and

WHEREAS, his duties, while encompassing those of keeping the records and minutes of the Society are carried out in an administrative way and the physical preparation of these is done by other persons, therefore

Be It Resolved that the title of the executive staff officer of the Kansas Medical Society be changed to the Executive Director to denote the dignity of this office, and

Be It Further Resolved that the Constitution and Rules Committee be instructed to make the necessary revision in the By-Laws.

RESOLUTION NO. 56

WHEREAS, organized medicine has been condemned as being against all medical legislation, and

WHEREAS, the Kerr-Mills Bill has been endorsed by the Kansas Medical Society, and

WHEREAS, no publicity has been given to this action, therefore

Be It Resolved that the public be acquainted with

the stand taken by the Kansas Medical Society by all means of publicity available.

RESOLUTION NO. 57

WHEREAS, in 1959, there was introduced in the House of Delegates Resolution No. 31, calling for the establishment of a Commission to Study the Relation of Medicine to Optometry and to report to the House of Delegates, and

WHEREAS, the House of Delegates caused to be established a subcommittee to study the relation of medicine to optometry, under the then Joint Committee to Study Paramedical Areas in Relation to Medicine, and

WHEREAS, the original Joint Committee to Study Paramedical Areas in Relation to Medicine has been succeeded by the Committee of Relationship of Medicine With Allied Health Professions and Services, and

WHEREAS, optometrists are not ancillary to Medicine, but are independent licensed practitioners and, therefore, do not constitute an allied health profession, and

WHEREAS, there exists confusion in the public mind as to the distinction between medical care for patients with ocular complaints and optometric services, and

WHEREAS, the lack of understanding in this area is a threat to the welfare of the patient, therefore

Be It Resolved that the House of Delegates establish a Commission on the Relation of Medicine to Optometry, to be appointed by the Speaker of the House at least one-half the members of which Commission shall be physicians practicing in the ophthalmological branch of Medicine, and

Be It Further Resolved that it shall be the specific function of this Commission to conduct a broad study, from the standpoint of the public interest of the problems involved in the present relation of Medicine to Optometry, and to explore all possible and desirable solutions to these problems, and

Be It Further Resolved that the Board of Trustees be requested to provide adequate personnel and funds for the proper performance of the duty assigned to this Commission, and

Be It Further Resolved that this Commission shall report to the House of Delegates not later than June, 1962.

RESOLUTION NO. 58

WHEREAS, many general practice residencies are unfilled and many have inadequate progressive and integrated training programs, and

WHEREAS, the present two-year family practice pilot program of the American Medical Association

(Continued on page 346)

Committees for 1961-1962

ALLIED GROUPS

J. B. Pretz, Kansas City, Chairman; J. J. Basham, Fort Scott; M. L. Belot, Jr., Lawrence; H. O. Bullock, Independence; A. R. Chambers, Iola; W. M. Cole, Wellington; G. W. Cramer, Parsons; R. A. Crawford, Hutchinson; F. J. Eckdall, Emporia; F. B. Emery, Concordia; J. H. Gilbert, Seneca; R. M. Glover, Newton; D. A. Huebert, Wichita; K. A. Powell, Leavenworth; D. J. Smith, Overland Park; N. C. Smith, Arkansas City; M. O. Steffen, Great Bend.

ANESTHESIOLOGY

R. T. Parmley, Wichita, Chairman; H. R. Barnes, Hutchinson; H. J. Brown, Winfield; W. E. Enders, Kansas City; E. L. Frederickson, Kansas City; V. G. Henry, Newton; M. R. Knapp, Wichita; R. S. McKee, Leavenworth; W. O. Martin, Topeka; A. W. Mee, Wichita; W. F. Powers, Wichita; L. J. Ruzicka, Concordia; H. F. Spencer, Emporia; J. R. Sumner, Hutchinson; E. T. Wulff, Atchison.

AUXILIARY

C. H. Benage, Pittsburg, Chairman; W. T. Braun, Pittsburg; H. L. Barry, Wichita; V. E. Brown, Sabetha; R. H. O'Neil, Topeka; L. G. Glenn, Protection; E. B. Scagnelli, Dodge City; L. H. Leger, Kansas City; J. B. Jarrott, Hutchinson.

BLUE SHIELD RELATIONS

H. R. Schmidt, Newton, Chairman; P. L. Beiderwell, Belleville; F. J. Bice, WaKeeney; C. W. Bowen, Topeka; R. E. Capsey, Centralia; O. R. Cram, Larned; C. W. Erickson, Pittsburg; G. W. Fields, Scott City; L. G. Glenn, Protection; A. C. Hatcher, Wellington; P. E. Hiebert, Kansas City; H. P. Jones, Lawrence; W. R. Lentz, Seneca; K. L. Lohmeyer, Emporia; J. R. Neuenchwander, Hoxie; B. G. Smith, Arkansas City; E. A. Walsh, Onaga.

CHILD WELFARE

R. L. Dreher, Salina, Chairman; M. J. Blood, Wichita; R. D. Boles, Dodge City; M. S. Boyden, Lawrence; W. H. Crouch, Topeka; D. R. Davis, Emporia; F. A. Gans, Salina; T. C. Hurst, Wichita; A. C. Irby, Fort Scott; G. F. Jordan, Jr., Wichita; H. P. Jubelt, Manhattan; W. F. McGuire, Wichita; E. A. Martin, Parsons; E. T. Olson, Newton; P. T. Schloesser, Topeka; R. N. Shears, Hutchinson; C. J. Winter, Jr., Kansas City; T. E. Young, Topeka.

CONSERVATION OF EYESIGHT

M. S. Lake, Salina, Chairman; B. J. Ashley, Topeka;

E. J. Bribach, Atchison; L. L. Calkins, Kansas City; M. A. Carter, Wichita; C. A. Crockett, Kansas City; J. E. Hill, Arkansas City; D. O. Howard, Wichita; C. T. McCoy, Hutchinson; H. E. Morgan, Newton; H. L. Patterson, Larned; W. M. Scales, Hutchinson; E. T. Siler, Hays; D. P. Trimble, Emporia.

CONSERVATION OF HEARING AND SPEECH

J. A. Budetti, Wichita, Chairman; C. W. Armstrong, Salina; R. E. Bridwell, Topeka; H. R. Draemel, Salina; E. K. Enns, Newton; E. S. Gendel, Topeka; C. L. Gray, Wichita; W. P. McKnight, Wichita; E. E. Miller, Pittsburg; R. G. Montgomery-Short, Halstead; V. R. Moorman, Hutchinson; W. D. Pitman, Pratt; G. O. Proud, Kansas City; R. E. Riederer, Olathe.

CONSTITUTION AND RULES

A. W. Fegtly, Wichita, Chairman; T. C. Ensey, Marion; A. C. Harms, Jr., Kansas City; L. S. Nelson, Jr., Salina; A. S. Reece, Gardner; G. L. Thorpe, Wichita; M. M. Tinterow, Wichita; C. E. Vestle, Humboldt; E. D. Yoder, Denton.

CONTROL OF CANCER

C. R. Openshaw, Hutchinson, Chairman; J. P. Berger, Wichita; G. L. Campbell, Arkansas City; W. G. Cauble, Wichita; A. M. Cherner, Hays; A. G. Dietrich, Newton; J. C. Dysart, Sterling; L. S. Fent, Newton; A. A. Fink, Topeka; W. A. Grosjean, Winfield; W. J. Kiser, Wichita; J. R. Kline, Wichita; M. V. Laing, Kansas City; C. H. Miller, Parsons; N. C. Nash, Wichita; D. C. Reed, Wichita; L. W. Reynolds, Hays; R. H. Riedel, Topeka; D. S. Ruhe, Kansas City; P. H. Schraer, Concordia; B. E. Stofer, Wichita; L. E. Vin Zant, Wichita; J. W. Welch, Halstead; H. M. Wiley, Garden City.

CONTROL OF TUBERCULOSIS

P. R. Carpenter, Kansas City, Chairman; A. L. Ashmore, Wichita; E. A. Baude, Topeka; R. M. Brooker, Topeka; J. A. Butin, Chanute; R. I. Canuteson, Lawrence; L. H. Coale, Kansas City; R. F. Conard, Emporia; M. J. FitzPatrick, Kansas City; J. K. Fulton, Wichita; E. C. Hwa, Newton; J. L. Morgan, Emporia; J. M. Mott, Topeka; G. W. Nice, Topeka; C. Pokorny, Halstead; C. F. Taylor, Norton; F. A. Trump, Ottawa; P. H. Wedin, Wichita.

DIABETES

B. M. Matassarini, Wichita, Chairman; M. L. Bauman, Wichita; R. E. Bolinger, Kansas City; J. E. Crary, Topeka; N. M. Jenkins, Salina; T. J. Luellen, Wichita.

EMERGENCY MEDICAL CARE

H. H. Hyndman, Wichita, Chairman; G. L. Ashley, Chanute; K. F. Bascom, Manhattan; F. C. Beelman, Topeka; R. W. Blackburn, Council Grove; G. L. Gill, Sterling; A. J. Horejsi, Ellsworth; C. C. Hunnicutt, Sabetha; N. M. Jenkins, Salina; D. S. Klassen, Newton; J. T. Mott, Topeka; N. H. Overholser, El Dorado; G. E. Paine, Hutchinson; O. F. Prochazka, Liberal; R. G. Rate, Halstead; R. H. Robinson, Wichita; R. E. Speirs, Dodge City; J. F. Thurlow, Hays; D. P. Trees, Wichita.

ENDOWMENT

C. V. Black, Pratt, Chairman; R. M. Mathews, Overland Park; R. A. Nelson, Wichita; R. J. Ohman, Dodge City; J. L. Perkins, Hutchinson; J. W. Randell, Marysville; R. Schrepfer, Kansas City; F. L. Smith, Jr., Colby; C. C. Underwood, Emporia.

EXECUTIVE

H. M. Glover, President, Newton; N. L. Francis, President-elect, Wichita; F. E. Wrightman, Past-president, Sabetha; H. St. Clair O'Donnell, First Vice President, Ellsworth; J. C. Mitchell, Sec. Vice President, Salina; J. L. Lattimore, Treasurer, Topeka; Leland Speer, Secretary, Kansas City.

FEE SCHEDULE

W. J. Reals, Wichita, Chairman, Pathology; W. R. Allen, Kansas City, Radiology; H. J. Brown, Winfield, Anesthesiology; J. G. Claypool, Howard, Internal Medicine; G. W. Fields, Scott City, General Practice; W. H. Fritzemeier, Wichita, Dermatology; L. W. Hatton, Salina, Psychiatry; J. E. Hill, Arkansas City, Ophthalmology; T. C. Hurst, Wichita, Pediatrics; G. B. Joyce, Topeka, Orthopedics; J. G. Kendrick, Wichita, Obstetrics and Gynecology; W. R. Lentz, Seneca, General Practice; W. P. McKnight, Wichita, ENT; P. W. Morgan, Emporia, Internal Medicine; C. R. Openshaw, Hutchinson, Thoracic Surgery; J. G. Phipps, Wichita, General Practice; J. E. Roderick, Salina, Urology; S. L. Vander Velde, Emporia, Surgery.

GENERAL PRACTICE AWARD

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GERONTOLOGY

D. V. Preheim, Newton, Chairman; J. O. Austin, Garden City; R. A. Barker, Council Grove; L. J. Beyer, Lyons; J. M. Catlett, Shawnee Mission; T. Dechairo, Westmoreland; D. M. Diefendorf, Waterville; G. M. Edmonds, Horton; H. A. Flanders, Hays; T. S. Gage, Overland Park; J. T. Hamilton, Wichita; A. G. Isaac,

Newton; A. M. Isaac, Newton; V. L. Jackson, Altamont; R. McCoy, Coldwater; K. McLain, Ransom; J. J. Marchbanks, Oakley; R. F. Morton, Arkansas City; T. V. Oltman, Riley; J. W. Parker, Burlington; E. S. Rich, Newton; D. L. Rose, Kansas City; H. L. Songer, Lincoln; C. E. Stevenson, Neodesha; G. A. Surface, Ellis; P. W. Thompson, Topeka.

HISTORY

R. R. Melton, Marion, Chairman; J. F. Barr, Ottawa; H. C. Clark, Wichita; A. W. Corbett, Emporia; O. W. Davidson, Kansas City; R. D. Grayson, Overland Park; J. G. Hugbanks, Independence; I. A. Koeneke, Halstead; R. H. Major, Kansas City; H. P. Palmer, Scott City; R. A. Schwegler, Lawrence; G. S. Voorhees, Leavenworth.

HOSPITALS

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LEGISLATION

N. L. Francis, Wichita, Chairman; (Executive Committee plus A.M.A. Delegates).

MATERNAL WELFARE

L. E. Woodard, Wichita, Chairman; A. H. Baum, Dodge City; D. L. Berger, Mission; E. C. Brandsted, McPherson; R. M. Carr, Junction City; H. R. Elliott, Pittsburg; H. M. Floersch, Kansas City; H. M. Foster, Hays; E. S. Gendel, Topeka; D. E. Gray, Topeka; R. G. Heasty, Manhattan; J. G. Kendrick, Wichita; D. S. Klassen, Newton; J. G. Lee, Jr., Kansas City; E. A. Martin, Parsons; O. L. Martin, Salina; C. P. McCoy, Wichita; M. D. Morris, Topeka; F. F. Nyberg, Wichita; E. S. Rich, Newton; W. R. Roy, Topeka; R. Sohlberg, Jr., McPherson; J. C. Schroll, Hutchin-

son; E. F. Steichen, Lenora; D. L. Traylor, Emporia; H. L. Wilcox, Lawrence; D. H. Wood, Pittsburg.

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MEDICARE

Kansas City Area: J. W. Manley, Kansas City, Chairman; D. L. Berger, Mission; K. L. Graham, Leavenworth; J. G. Lee, Jr., Kansas City; G. J. Pierron, Olathe.

Manhattan Area: C. J. W. Wilen, Manhattan, Chairman; J. D. Colt, Jr., Manhattan; P. H. Hostetter, Manhattan.

Salina Area: L. S. Nelson, Sr., Salina, Chairman; D. A. Anderson, Salina; R. L. Dreher, Salina; N. M. Jenkins, Salina.

Topeka Area: G. B. Joyce, Topeka, Chairman; L. R. Pyle, Topeka; L. L. Saylor, Topeka.

Wichita Area: C. W. Miller, Wichita, Chairman; H. S. Bowman, Wichita; J. G. Kendrick, Wichita; B. P. Meeker, Wichita.

MENTAL HEALTH

J. A. Grimshaw, Topeka, Chairman; A. J. Adams, Wichita; H. V. Bair, Parsons; A. P. Bay, Topeka; E. P. Carreau, Wichita; I. C. Case, Topeka; O. R. Cram, Jr., Larned; J. A. Dunagin, Topeka; D. E. Eckart, Hutchinson; W. J. Gardner, Halstead; D. C. Greaves, Kansas City; L. W. Hatton, Salina; A. M. Isaac, Newton; G. W. Jackson, Topeka; J. S. Menaker, Wichita; F. C. Newsom, Wichita; W. F. Roth, Jr., Kansas City; W. C.

Schwartz, Manhattan; W. A. Warren, Wichita; H. G. Whittington, Lawrence; M. E. Wright, Lawrence.

NECROLOGY

O. R. Clark, Topeka, Chairman; D. E. Gray, Topeka; R. Greer, Topeka; D. Lawson, Topeka; J. A. Segerson, Topeka.

NOMINATIONS

T. P. Butcher, Emporia, Chairman; C. M. Barnes, Seneca; C. W. Miller, Wichita; L. S. Nelson, Sr., Salina; H. N. Tihen, Wichita.

PATHOLOGY

J. E. Johnson, Kansas City, Chairman; R. J. Eilers, Kansas City; A. A. Fink, Topeka; C. A. Hellwig, Halstead; I. Joffe, Kansas City; W. E. Luedtke, Emporia; W. J. Reals, Wichita; R. J. Rettenmaier, Kansas City; C. J. Weber, Salina.

PERINATAL WELFARE

W. H. Crouch, Topeka, Chairman; H. Aldis, Fort Scott; R. D. Boles, Dodge City; V. E. Bolton, Kansas City; M. D. Christensen, Kiowa; J. M. Graham, Leavenworth; G. F. Jordan, Jr., Wichita; H. P. Jubelt, Manhattan; R. C. Knappenberger, Wichita; O. L. Martin, Salina; R. E. Pfuetze, Topeka; L. R. Pyle, Topeka; P. T. Schloesser, Topeka; R. N. Shears, Hutchinson; T. E. Young, Topeka.

POSTGRADUATE STUDY

C. R. Rombold, Wichita, Chairman; W. H. Algie, Kansas City; G. E. Burket, Jr., Kingman; M. H. Delp, Kansas City; D. B. Foster, Topeka; S. R. Friesen, Kansas City; B. C. Gradinger, Halstead; T. W. Graham, Leavenworth; G. C. Hutchison, Hays; D. Lawson, Topeka; D. Lukens, Hutchinson; E. L. Mills, Wichita; E. J. Ryan, Emporia; C. T. Sills, Newton.

PUBLIC POLICY

F. E. Wrightman, Sabetha, Chairman; C. M. Barnes, Seneca; C. H. Benage, Pittsburg; W. F. Bernstorff, Winfield; T. P. Butcher, Emporia; W. P. Callahan, Wichita; O. W. Davidson, Kansas City; M. C. Eddy, Hays; E. S. Edgerton, Wichita; J. L. Lattimore, Topeka; F. L. Loveland, Topeka; N. E. Melencamp, Dodge City; C. W. Miller, Wichita; B. A. Nelson, Manhattan; L. S. Nelson, Sr., Salina; J. H. A. Peck, St. Francis; G. R. Peters, Kansas City; L. R. Pyle, Topeka; H. N. Tihen, Wichita.

PUBLIC RELATIONS

L. S. Nelson, Sr., Salina, Chairman; S. A. Anderson, Clay Center; C. H. Benage, Pittsburg; T. P. Butcher, Emporia; E. W. Crow, Wichita; A. H. Dyck, McPherson; J. L. Lattimore, Topeka; J. W. Manley, Kansas City; G. Marshall, Colby; C. W. Miller, Wichita; R. H. O'Donnell, Ellsworth; L. W. Patzkowsky, Kiowa; J. R. Twinem, Olathe; W. O. Wallace, Atchison.

(Continued on page 342)

From the Stacks

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011, ex. 297

State Medical Library

Anatomy Monographs available in the library

- Lockhart, R. D. *Anatomy of the human body*. Lippincott. 1959.
Leonardo da Vinci. *Leonardo da Vinci on the human body: the anatomical, physiological and embryological drawings of Leonardo da Vinci*. Saunders. 1952.
Thompson, Edward. *Anatomy for the medical record librarian*. Physician's Record Co. 1956.

Histology

- Ciba Foundation. *Preservation and transplantation of tissues*. Little, Brown. 1954.
Gomori, George. *Microscopic histochemistry; principles and practice*. Univ. of Chicago Press. 1952.
Ham, Arthur. *Histology*. Lippincott. 1957.
Peer, Lyndon. *Transplantation of tissues*. Williams & Wilkins Co. 1955.
Shearer, Edwin. *Manual of human dissection*. McGraw-Hill. 1955.
Woodruff, Michael. *Transplantation of tissues and organs*. Thomas. 1960.
Ciba Foundation. *Symposium on bone structure and metabolism*. Little, Brown. 1956.
Lankenau Hospital. *Bone as a tissue; proceedings of a conference*. Blakiston. 1960.
U. S. Armed Forces Medical Library. *Structure, composition and growth of bone. 1930-1953, a bibliography*. Armed Forces Med. Library. 1955.

Regional Anatomy

- Freig, Wendell. *Functional neuroanatomy; with illus.* Blakiston. 1953.
MacDonald, Joseph. *Correlative neuroanatomy*. Univ. Med. Pub. 1950.
Morrison, Lawrence. *Effect of advancing age upon the human spinal cord*. Harvard Univ. Press. 1959.
Anson, Barry. *An atlas of human anatomy*. Saunders. 1950.
Callander, Cyrus. *Surgical anatomy*. Saunders. 1958.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

- Lederle Laboratories. *Atlas of normal anatomy*. 1956.
Thorek, Philip. *Anatomy in surgery*. Lippincott. 1951.
Woerdeman, Martinus. *Atlas of human anatomy*. Blakiston. 1950.
Truex, Raymond. *Detailed atlas of the head and neck*. Oxford Univ. Press. 1948.
Michels, Nicholas. *Blood supply and anatomy of the upper abdominal organs with a descriptive atlas*. Lippincott. 1955.
Greulich, William. *Radiographic atlas of skeletal development of the hand and wrist*. Stanford Univ. Press. 1959.
Kaplan, Emanuel. *Functional and surgical anatomy of the hand*. Lippincott. 1953.

Physiology

- Clendening, Logan. *The human body*. Garden City Pub. Co. 1927.
Nash, Joseph. *Surgical physiology*. Academic Press. 1951.
Albritton, Errett. *Standard Values in nutrition and metabolism*. Saunders. 1954.
Annual review of biochemistry. Stanford University Press. 1932 to present.
Borek, Ernest. *Man, the chemical machine*. Columbia Univ. Press. 1952.
Ciba Foundation Symposium on the regulation of cell metabolism. Little, Brown. 1959.
Crile, George Washington. *The phenomena of life; a radio-electric interpretation*. Norton Co. 1936.
Everett, Mark R. *Medical biochemistry*. Hoeber. 1946.
Fruton, Joseph S. *General biochemistry*. Wiley. 1953.
Gaebler, Oliver H. *Enzymes: units of biological structure and function*. Academic Press. 1956.
Selye, Hans. *The stress of life*. McGraw-Hill. 1956.
Snively, William D. *Sea within; the story of our body fluid*. Lippincott. 1960.
Symposium on delayed effects of whole-body radiation. Johns Hopkins Press. 1960.
White, Abraham. *Principles of biochemistry*. McGraw-Hill. 1959.
Bard, Philip. *Medical physiology*. Mosby Co. 1956.
Best, Charles H. *The physiological basis of medical practice*. Williams and Wilkins. 1950.
Fulton, J. F. *A textbook of physiology*. Saunders. 1955.
Annual review of physiology. Stanford University Press. 1939 to present.
Albritton, E. C. *Standard values in blood*. Saunders. 1952.

(Continued on page 346)



Blue Shield

Interest Growing in Local County Service Benefit Program

Blue Shield's most recent development of a more comprehensive medical-surgical benefit plan, known as the Local County Service Benefit Program, was initiated last March in Butler County under the sponsorship of the Butler County Medical Society. Interest in this plan has been increasing over the state and the program has now been approved by two additional County Medical Societies. McPherson and Montgomery Counties have adopted the program.

McPherson County enrollment began in mid-June and has just been completed. A membership drive in Montgomery County will get under way July 17.

Although it is too early to report enrollment progress in McPherson County, preliminary figures are available from Butler County, revealing successful results. Particular success can be noted in the upgrading to Service Benefits by Blue Cross-Blue Shield Employee Groups formerly carrying Schedules 1 and 2. Over 40 per cent of the total Blue Shield group membership in the county converted to the new program during the campaign in March.

In summarizing the membership gain during the campaign, an estimated 2,360 members in the county are now enrolled in the Schedule 3 program. Overall, Blue Shield membership in all categories was increased approximately 335 members. These results indicate an increasing public desire for more comprehensive programs with predictable coverage.

The Local County Service Benefit Program, frequently referred to as Schedule 3, was developed as a means of providing a greater predictability of coverage for members. In order for the Program to be established in a county, the local Medical Society must first approve it. Then physicians in the area

have an opportunity to sign agreements which extend their Blue Shield participation to include the new Local Service Benefit Plan.

To participate in the program, it is necessary for a physician also to be a Blue Shield Participating Physician in Schedule 1 (Plan A) and Schedule 2 (Plan B). On the other hand, the doctor may elect to continue participating in Schedules 1 and 2 without obligation to sponsor the new Service Benefit Program.

The Local County Service Benefit Program is founded on a service basis that removed income as a determining factor. The physician agrees to accept the Blue Shield allowance for covered services according to three conditions:

1. That the patient use the services of a physician participating in the program.
2. That the member has no other surgical-medical coverage.
3. That when hospitalized, the member occupies a semi-private room. Added benefits include first and last day in-hospital medical care; in-hospital consultation allowances; separate fees for assistant surgeons, and a revised surgical allowance scale known as Fee Schedule 3. Schedule 3 increases fees above the Schedule 2 (Plan B) level for the forty most commonly performed surgical procedures. The remaining procedures carry the Schedule 2 allowance.

Questions have been asked concerning the role in the program for non-participating physicians. Listed benefits are available to members, but the special "service benefit" features apply only when services are obtained from physicians participating in the Program.

Service Benefits by physicians participating in only the present Schedules 1 and 2 would be extended only on the income basis already followed under Schedule 2 (Plan B), which is \$4,500 or below for family memberships. Allowances would be according to Schedule 3 amounts and would be paid directly to the physician.

Benefits would be available to the member for services obtained from licensed physicians who do not participate in any manner in Blue Shield. These would be paid on an indemnity basis however, and payments would be sent to the members.

Indications point toward continuing interest by other areas in Local County Service Benefit Programs. The first step in developing a local program would be an expression of interest by the local Society to Blue Shield. At this time, committee could be appointed on the local level to work with the Blue Shield staff and investigate the advisability of adopting such a plan in the county.

Committees for 1961-1962

(Continued from page 339)

RELATIONS WITH BAR ASSOCIATION

G. E. Burket, Jr., Kingman, Chairman; L. G. Allen, Jr., Kansas City; J. O. Baeke, Overland Park; T. R. Hamilton, Kansas City; J. B. Jarrott, Hutchinson; C. S. Joss, Topeka; W. G. Parker, Hoxie; E. J. Ryan, Emporia; J. A. Segerson, Topeka; K. E. Voldeng, Wellington.

RURAL HEALTH

C. R. Svoboda, Chapman, Chairman; P. D. Adams, Osage City; V. E. Brown, Sabetha; J. G. Claypool, Howard; F. G. Freeman, Pratt; M. F. Frederick, Hugoton; R. E. Grene, La Crosse; W. A. Harms, Hesston; H. W. Hiesterman, Quinter; P. H. Hostetter, Manhattan; R. L. Krause, Goessel; E. E. Long, Humboldt; R. P. McCarthy, Bethel; D. Marchbanks, Hill City; L. W. Patzkowsky, Kiowa; D. R. Pierce, Topeka; J. G. Rowlett, Paola; J. Scanlon, Horton; M. E. Schulz, Russell; R. R. Snook, McLouth; E. F. Steichen, Lenora; M. H. Waldorf, Jr., Greensburg; H. O. Williams, Cheney; D. H. Wood, Pittsburg; E. D. Yoder, Denton.

SAFETY

A. C. Eitzen, Hillsboro, Chairman; T. G. Duckett, Hiawatha; J. A. Grove, Newton; C. D. Hensley, Jr., Wichita; A. E. Hiebert, Wichita; J. E. Hill, Arkansas City; C. T. McCoy, Hutchinson; G. R. Maser, Mission; A. L. Nichols, Hiawatha; J. H. A. Peck, St. Francis; R. R. Snook, McLouth; H. E. Snyder, Winfield; H. B. Sullivan, Jr., Shawnee; R. P. Weltmer, Beloit; R. C. Ye, Kansas City.

SCHOOL HEALTH

C. M. Barnes, Seneca, Chairman; M. D. Athon, Overland Park; W. F. Bernstorff, Winfield; V. L. Branson, Lawrence; J. A. Butin, Chanute; E. J. Chaney, Belleville; W. H. Crouch, Topeka; E. S. Gendel, Topeka; E. D. Greenwood, Topeka; R. H. Greer, Topeka; D. G. Griswold, Newton; J. A. Grove, Newton; R. Hale, Wichita; H. P. Jubelt, Manhattan; M. S. Lake, Salina; O. W. Longwood, Stafford; H. Lutz, Augusta; W. C. Menninger, Topeka; W. E. Myers, Iola; R. A. Nelson, Wichita; R. R. Snook, McLouth; H. R. Wagenblast, Salina.

STATE MEETING FORMAT

N. L. Francis, Wichita, Chairman; L. H. Leger, Kansas City; J. L. Perkins, Hutchinson; R. K. Purves, Wichita; J. E. Roderick, Salina; E. J. Ryan, Emporia; R. Sohlberg, Jr., McPherson; R. C. Tozer, Topeka.

STORMONT MEDICAL LIBRARY

B. M. Powell, II, Topeka, Chairman; W. L. Fowler, Concordia; W. E. Hird, Wichita; N. M. Jenkins, Salina; R. C. Lawson, Topeka; G. A. Lessenden, Lawrence; D. S. Lowe, Hiawatha; M. F. Stock, Pittsburg; R. G. Weiner, Halstead; R. P. Woods, Topeka.

STUDY OF HEART DISEASE

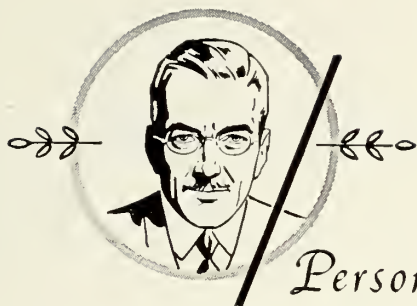
L. E. Peckenschneider, Halstead, Chairman; M. S. Allen, Kansas City; D. R. Bedford, Topeka; J. W. Butin, Wichita; E. W. Crow, Wichita; C. W. Erickson, Pittsburg; L. H. Leger, Kansas City; D. Lukens, Hutchinson; P. W. Morgan, Emporia; R. F. Morton, Arkansas City; G. L. Norris, Winfield; L. F. Schmaus, Iola; C. T. Sills, Newton; H. B. Stryker, Jr., Concordia; D. C. Wakeman, Topeka; C. J. W. Wilen, Manhattan.

The oyster, when the moon is full, opens itself wide, and when the crab looks in he throws in a piece of rock or seaweed and the oyster cannot close again, whereby it serves for food to that crab. This is what happens to him who opens his mouth to tell his secret. He becomes the prey of the treacherous hearer.

—Leonardo Da Vinci

We must be prepared during the years ahead to live in a world in which tension and bickering between free nations and the Soviet will be a daily experience.—Dwight D. Eisenhower

He that falls in love with himself will have no rivals.—Benjamin Franklin



Personalities—IN KANSAS MEDICINE

Dr. Will Menninger, Topeka, led a discussion panel at a session on "The States and the Mentally Ill" June 26 at the Conference of the Governors of the 50 states in Honolulu. Gov. John Anderson was a panelist.

Dr. Wm. J. Reals, Wichita, was a Judge at the National Science Fair in the division of "Pathology-Medical Technology Awards" which was held in Kansas City, Missouri, May 10-13.

Dr. Dale W. Anderson, Augusta, presented the lesson to the Science Seminar students May 4. His topic was "Cancer."

Dr. Robert Wallerstein, Topeka, has been elected chairman of the committee on research of the Group for the Advancement of Psychiatry.

Dr. Ernest P. Carreau, Wichita, attended the American Goiter Association meeting in Philadelphia, May 3-6.

Dr. J. Gordon Claypool, Howard, attended the 42nd annual convention of the American College of

Physicians, held at Miami, Florida, the middle of May. Dr. Claypool was one of the more than 300 who received his advancement to Fellowship.

Dr. Bernard Hall, Topeka, has been named to a three-year term on the committee on the history of psychiatry of the American Psychiatric Association. Dr. Hall spoke on "Your Investment in Mental Health" at a public lecture at Donnelly College in Kansas City, Kansas.

Dr. Mary J. Blood, Wichita, attended a Symposium on Pediatrics at the University of Kansas Medical Center, May 6-8.

Drs. Joseph Stein and John Segerson, Topeka, attended a meeting of the American Academy of Neurology in Detroit. Dr. Segerson was a leader of a one-day training program in Topeka for Kansas Catholic Lay Volunteers who will work in South America.

Dr. Ralph L. Drake, Wichita, attended the American Academy of Neurology meeting in Detroit, April 24-29.

Dr. Karl Menninger, Topeka, spoke on "Changing Viewpoints in Criminology" at the 60th anniversary dinner of the John Howard Association in May in Chicago. The association is a private group which studies and makes recommendations on penal reform and criminology.

Dr. E. W. Christmann, Wamego, has announced Dr. Wm. Braden has associated with him as of July 1.

Dr. Chas. LeRoy Williams, a Wichita cardiologist, was named president of the Kansas Heart Association during its 12th annual convention on May 27.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

| | |
|--|--|
| Grady N. Coker, Jr., M.D. Gelvin-Haughey Clinic Concordia, Kansas | William J. Porter, M.D. American Independent Oil Co. P. O. Box 69 Kuwait, Arabia |
| Tex E. Fury, M.D. 1624 Delaware Lawrence, Kansas | Donald E. Sklenar, M.D. Wellington, Kansas |
| Eugene McCormick, M.D. Conway Springs, Kansas | Roger L. Youmans, M.D. K.U. Medical Center 39th & Rainbow Blvd. Kansas City 12, Kansas |



ROBERT C. GRIBBLE, M.D.

Dr. Robert Gribble, 48, Dodge City, died June 1 at the University of Kansas Medical Center.

Dr. Gribble was born in 1912. He graduated from the University of Kansas School of Medicine in 1937 and interned in Santa Barbara, California where he was married in 1938. He had practiced medicine in Dodge City since 1946 following his release from World War II service as a medical officer with rank of major.

Survivors are Mrs. Gribble; a daughter, Karen; a son, Robert; three sisters and five brothers.

CHARLES N. JOHNSON, M.D.

Dr. C. N. Johnson, 75, Wichita, died May 26 in St. Francis Hospital in Wichita. He was born in 1885 near Andale. In 1910 he graduated from Northwestern University Medical School. He interned at St. Francis Hospital, Wichita, and spent three years practicing at Mount Hope and moved to Wichita in 1917. He married Mable Allison in 1912 in Wichita. He served as captain in World War I and as major in World War II.

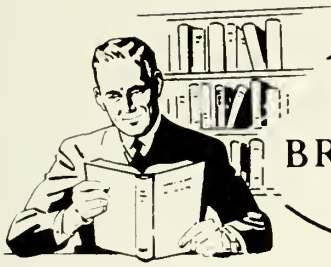
Survivors include Mrs. Johnson, three sons, a daughter, one brother and twelve grandchildren.

JUSTIN J. McDONALD, M.D.

Dr. McDonald, 69, who practiced in Coffeyville nine years before moving to Bartlesville recently, died May 16.

He was born in 1893 in Arlington, Illinois and in 1914 he graduated from the University of Illinois Medical School. In 1926, in North Dakota, he married Miss Avis Pillsbury. Dr. McDonald was an Eye, Ear, Nose and Throat specialist.

He is survived by Mrs. McDonald, a daughter, a son, three sisters, one brother, and six grandchildren.



Just BROWSING

With the centennial of our state and the centennial of the Civil War both coming during this year, Kansans seem more "centennial conscious" than others, and along with the growing of beards and wearing of hoop skirts and bonnets there has come the production of some commemorative publications. One of these recently off the press has come to attention at the end of the school year. *The Doctor, 1861-1961*, is a 32 page loose-leaf book, bound with plastic rings, and compiled by some members of the class of 1961 at KUMC.

Having had considerable experience in assembling such documents in the preparation of the KMS Centennial issue of the JOURNAL two years ago, I can appreciate the efforts which have been put into this interesting book. Introduced as a supplement to the Yearbook, it has attracted considerable attention and drawn favorable comment from those who have seen it.

The book traces, principally through pictures and appropriate captions, the highlights of Kansas medicine from Territorial days to the present. The part which was played by physicians during the days of "Bleeding Kansas" is amazing, as they took their places in the struggle between slavery forces and abolitionists—and on both sides. The border war, and finally, the drafting of the adopted Wyandotte Constitution with Kansas' admission to the Union saw medical men in positions of prominence.

The impact of the Civil War struck Kansas during the state's infancy and the medical men of Kansas contributed their share and more—even including one Major General in command of the Army of the Frontier.

Early statehood days, Carrie Nation, the Spanish-American War, and the early days of the School of Medicine at the University of Kansas are all portrayed, as well as Dr. Crumbine's efforts in the field of Public Health. The Brinkley affair, without which no historical treatise of Kansas would be complete, receives due attention.

Appropriately, the emphasis is on a tribute to the men who did so much to help develop the medical school at the University of Kansas—both those who got it started as a two-year plan, and those who later helped to get approval for the four-year school and develop it to its present level of prestige. There have been many worthy men engaged in this effort, and it is fitting that they should be honored by the current publication.

The little book is well done, is interesting material, and is worth the efforts which the publishers expended to bring it into being. It should take its place among the preserved documents of Kansas medicine.

Additional copies are available in limited numbers, at a cost of \$2.00, and may be ordered from John B. Runnels, M.D. or George F. Sheldon, M.D., University of Kansas Medical Center.—O.R.C.

Official Proceedings

(Continued from page 336)

fails to adequately prepare the young physician to do general practice in his own community, and

WHEREAS, each segment of organized medicine has—and still does—determine the minute details and over-all content of their respective training programs, therefore

Be It Resolved that the Council on Medical Education and Hospitals of the American Medical Association be requested to formulate other pilot two-year progressive training programs which are acceptable to the American Academy of General Practice, the only national association representing general practice.

RESOLUTION NO. 59

WHEREAS, a committee of the Kansas Medical Society authorized by a Special House of Delegates meeting has been meeting as part of a committee appointed by the Governor of Kansas and has produced a plan to make available medical services to the persons receiving old age assistance or indigent care, and

WHEREAS, KPS has worked closely in cooperation with its sponsoring body, the Kansas Medical Society, in helping the Kansas Medical Society provide medical services for the people of Kansas, and

WHEREAS, the Kansas Medical Society wishes to sponsor medical services for those persons on OAA at the highest efficiency and at lowest possible cost, and

WHEREAS, it would materially increase the cost of such a plan if a new bureau was to be formed, personnel secured and equipment procured, and

WHEREAS, Blue Cross-Blue Shield has the necessary skill, personnel and equipment for providing these services of fiscal agent on a non-profit basis

Be It Resolved that the Kansas Medical Society strongly urge the Governor of Kansas that Kansas Blue Cross-Blue Shield be designated the fiscal agent if and when such program is instituted.

RESOLUTION NO. 60

Reno County Medical Society (1)

WHEREAS, the Kansas State Board of Health has become increasingly active in fields which might be interpreted as properly belonging to the practice of private medicine, and

WHEREAS, the component county societies of the Kansas Medical Society are frequently in ignorance of the details regarding proposed surveys, studies and clinics planned by the Kansas State Board of Health, therefore

Be It Resolved that the most effective manner of operating public health surveys, studies and clinics

will be with the informed and cooperative support of the component medical society involved, and

Be It Further Resolved that subsequent surveys, studies or clinics contemplated by the Kansas State Board of Health shall be conducted only after the expressed approval of and in such manner as is acceptable to the component medical society involved.

The president, then, called upon the spokesmen from each of the districts for which new councilors were to be elected:

District No. 2—J. W. Manley, M.D., re-elected to another three-year term.

District No. 4—Dick B. McKee, M.D., re-elected to another three-year term.

District No. 11—William J. Reals, M.D., re-elected to another three-year term.

District No. 13—A. M. Cherner, M.D., re-elected to a three-year term.

District No. 14—The committee reported they would caucus later and send the name of their councilor to the Executive Office by mail.

District No. 15—Evan R. Williams, M.D., Dodge City, was elected to a three-year term.

The president then declared Dr. Harold M. Glover to be the new president of the Kansas Medical Society, who took the chair and adjourned the House of Delegates at 3:55 p.m.

The Kansas Press Looks at Medicine

(Continued from page 330)

enthusiasm for it. The need may not be there, but if sufficient numbers can be convinced it is good and they respond by cheering, the proponents can say they are making political hay.

This political approach is difficult for the medical profession to cope with. Given a little time the doctors just might swing this tide in another direction.—*Arkansas City Daily Traveler*, May 18, 1961.

From the Stacks

(Continued from page 340)

Asimov, Isaac. The living river. Abelard-Schuman. 1959.

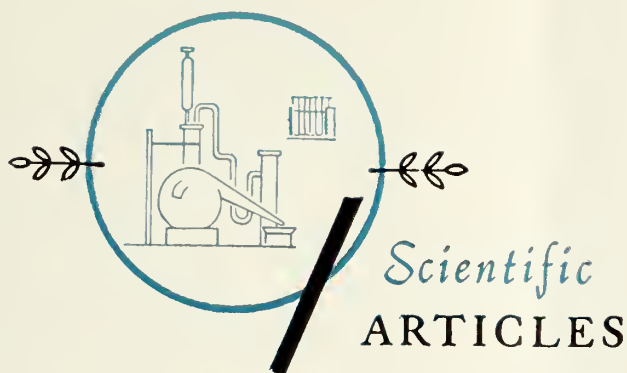
Ciba Foundation. Peripheral circulation in man. Little, Brown. 1954.

Diggs, Lemuel. The morphology of human blood cells. Saunders. 1956.

Roth, G. M. Tobacco and the cardiovascular system. Thomas. 1951.

Altman, P. Handbook of respiration. Saunders. 1958.

Duncan, G. G. Diseases of metabolism. Saunders. 1955.



I^{131} Scannergrams

The Use of I^{131} Scannergrams in The Evaluation of the Thyroid Nodule

D. R. GERMANN, M.D., and ROBERT BURNS, M.D., *Kansas City*

RADIOACTIVE IODINE is a very popular and accurate test of thyroid function. It has also been used in an attempt to identify thyroid cancer. This is based on the finding of I^{131} outside of the thyroid areas. This would imply metastatic functioning thyroid gland.

Scannergrams of the thyroid gland offer a slightly different approach to the thyroid problem. By this means we are attempting to identify which portion of the thyroid gland functions normally or abnormally. If the site of abnormal function relates to a thyroid nodule this has some diagnostic significance. It is in this manner that we hope to study patients and eventually separate the surgical nodule from the non-surgical nodule.

Material

Between October 1953 and January 1960 approximately 22,000 radio-iodine uptake studies were done. Of this total 1,662 thyroid scanning procedures were done. The scanning procedure was limited to patients who had a palpable nodule or who had an elevated I^{131} uptake. There were rarely other indications for the scan. Of these scans only 106 patients came to surgery in our institution. Surgery was performed in other institutions for several patients but all could not be followed. For that reason all who were not operated upon at the K. U. Medical Center have been eliminated from our statistics. Eighteen cases of carcinoma of the thyroid were found in this group of patients which is approximately one-half

the thyroid cancers registered at this institution during this period of time. Patients operated upon in the hospital without scans are not included in the statistics.

Method

The scans were made by a scanner which is one of the early commercial models (Tracer-Labs Tracer Scanner). The scintillator is a thallium-activated sodium iodide crystal 1 inch long, $\frac{1}{4}$ inch in diameter. The Tungsten shield is cylindrical and rounded to a smooth dome at the distal end, providing shielding of $\frac{5}{8}$ inch with a $\frac{1}{4}$ inch diameter hole. The patient is given 40 to 80 microcuries of radioactive sodium iodide orally, and the scan is performed approximately twenty-four hours later. The patient's nodule or nodules are marked on the skin. The position is transferred to the tracing by identifying marks on the scan. Virtually all of the patients and scans have been done by a member of the staff. (DG) Instructions to the patient during the scan included restriction of swallowing except when the scanning tube is at one side or the other.

Classification

This study is primarily based on nodular glands. Nodules are classified as follows:

(A) Hyperfunctioning nodules reflect increased concentration of sodium iodide as compared to

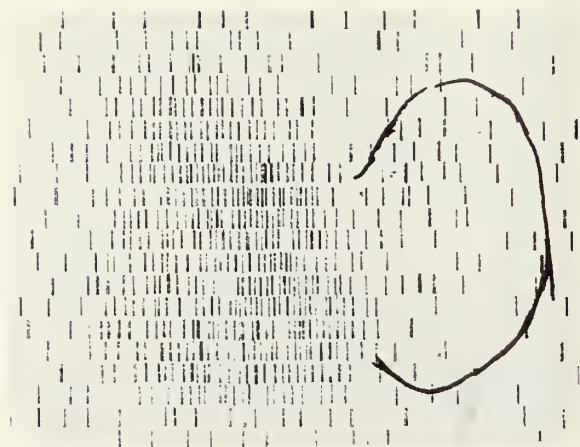


Figure 1

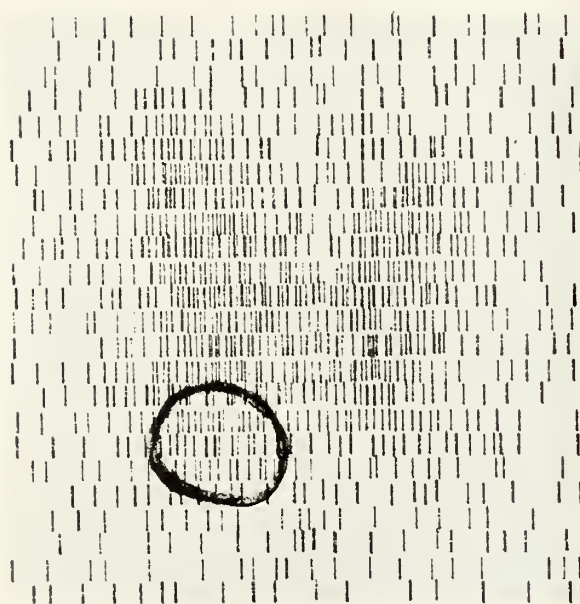


Figure 2

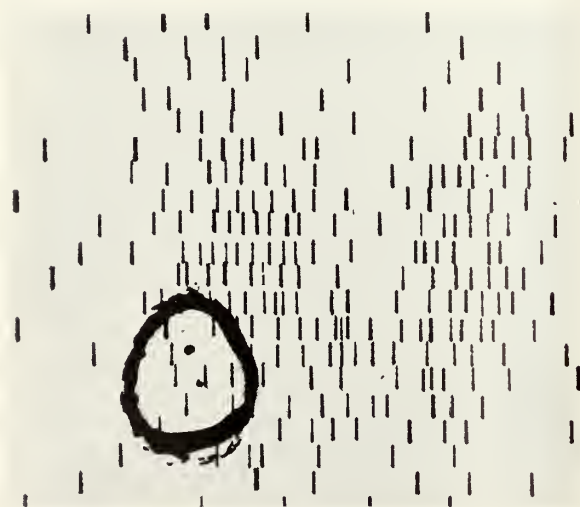


Figure 3

adjacent thyroid tissue. This is an exceedingly difficult situation to prove since a gland which is increased in its thickness, or mass, in a given area must be distinguished from a nodule.

(B) Functioning or neutral nodules represent an area in which the activity of sodium iodide is essentially the same as surrounding thyroid tissue, or the function of the gland does not appear to be altered by the presence of nodules.

(C) Reduced or non-functioning nodules or areas which are palpable and which show less function than the adjacent thyroid tissue. This is perhaps the easiest to evaluate since the increased mass may be present where there is decreased function. The following figures, 1, 2 and 3 are examples of each of the above classifications.

Results

Further classification of the results was possible by dividing the multinodular goiters from the solitary nodular goiters. The pathology report was used in making this division since it is occasionally difficult to be certain from the clinical findings. The results of solitary nodules are shown in Fig. 4. The results of multinodular goiters are shown in Fig. 5. Total summary of results are shown in Fig. 6. It will be noted that there is a strikingly high incidence of malignancy in the non-functioning solitary nodule.

Discussion

By auto-radiography, Dobyns,¹ suggests that the discreet encapsulated nodules should be arranged histologically in a spectrum ranging from the least differentiated and progressing to the most differentiated pattern and that generally there was a parallel to function. Greene² analyzed a series of 202 cases of which 93 were functioning, and 109 were non-functioning nodules, by constructing isodose curves from auto-radiography. There were no malignant lesions in the functioning group. Groesbeck,³ analyzed 527 patients of which 233 subsequently had surgery. Three carcinomas in the functioning nodular group and 20 of the 121 non-functioning group were found. Perlmutter,⁴ reporting on 116 cases found 23 of 99 non-functioning nodules were malignant, and only one of 40 functioning nodules was malignant. This latter was an area of function in a metastatic node. Fig. 7 is a summary of the above mentioned cases plus our own statistics.

Conclusion

Our scanning device has been used over a seven-year period. During that time there have been many technical advances in this area. We have elected not to change our technique but try to be consistent in our studies. The above statistics would seem to sup-

SOLITARY NODULES—37 CASES

A. Non-function on Tracergram

| | |
|---------------------|----|
| Carcinoma | 10 |
| Non-carcinoma | 15 |

B. No Alteration in Function

| | |
|---------------------|----|
| Carcinoma | 0 |
| Non-carcinoma | 12 |

Figure 4

MULTIPLE NODULES—69 CASES

A. Non-function on Tracergram

| | |
|---------------------|----|
| Carcinoma | 5 |
| Non-carcinoma | 55 |

(45 were colloid nodular)
(6 were Ch. thyroiditis)

B. No Alteration in Function

| | |
|---------------------|---|
| Carcinoma | 0 |
| Non-carcinoma | 9 |

Figure 5

INCIDENCE OF CANCER IN SURGICALLY
REMOVED NODULES

Incidence
Per Cent

Total of 15 cases out of a total of 106 14

INCIDENCE OF CANCER IN NODULES
WITH DIMINISHED FUNCTION

Incidence
Per Cent

| Cases | | |
|---|----|--|
| Sol. Nodule—10 out of 25 cases were Ca. | 40 | |
| Mul. Nodules—5 out of 60 cases were Ca. | 8 | |

Figure 6

| Source | Isotope Classification | Pathologic Classification | | Total |
|--------------------------|-----------------------------|------------------------------|----|-------|
| | | B | CA | |
| Perlmutter and Slater | Cold | 76 | 23 | 140 |
| | Hot | 40 | 1* | |
| Groesbeck | Functioning ... | 80 | 3 | 20 |
| | Non-functioning | 121 | 20 | |
| Greene | Hyperfunc- tioning | 13 | 0 | 237 |
| | Cold | 109 | 22 | |
| KUMC | Neutral or hot . | 93 | 0 | 202 |
| | Non-functioning | 85 | 15 | |
| | Functioning ... | 21 | 0 | 106 |
| | | | | 685 |

Figure 7

port the basic premise that a thyroid nodule which functions has a very low probability of malignancy, and that a thyroid nodule which does not function should, in general, be considered a surgical nodule.⁵ This is particularly true if the nodule is a solitary one.

References

1. Dobyns, B. M. and Lemmon, V.: A Study of the Histopathology and Physiologic Function of Thyroid Tumors Using Radio-iodine and Radioautography. *Tr. Am. Goiter A.*, 1948, p. 179. *Journal of Clinical Endocrinology*, Vol. 8:732, 1948.
2. Greene, Ray: Discrete Nodules of the Thyroid Gland. *Annals of the Royal College of Surgery of England*, Vol. 21, No. 2, p. 73, Aug., 1957.
3. Groesbeck, H. P.: Evaluation of Routine Scintiscanning of Non-toxic Thyroid Nodule Cancer, Vol. 12, Jan.-Feb., 1959.
4. Perlmutter, M.: Which Nodular Goiter Should Be Removed? *New England Journal of Medicine*, 1956, 255, p. 65.
5. Miller, J. M.: Carcinoma and Thyroid Nodules, *New England Journal of Medicine*, 1955, 252, No. 7, p. 247.

Editor's Note: This article was submitted to THE JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, THE JOURNAL was able to publish only half of the articles submitted.

The remaining papers will appear in the upcoming issues. THE JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.

Life's Depths

The depths of life are spiritual depths. They are not gained by travel, be it ever so wide, nor by exciting worldly adventures. They are plumbed at home, by the fireside, at the supper table, in bed on sleepless nights, in the snatched intervals of exhausting and ordinary toil, in the room where a father lies dying, in the room where two young people are confessing love, in the room where a child is born.

—*Author unknown*

Superstitions

Do rats desert a sinking ship? According to a mammalogist at the New York City Museum of Natural History—if they do, it's only because they're holed up in the bottom of the ship and want to get out. Who wouldn't?

Schizophrenia, the nation's number one mental disorder is recognized most frequently during the most productive years of life, according to *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians. A study of patients admitted with the disease to nonfederal mental hospitals showed that the highest incidence of the disease is in the 25-34 age group.

The Heart and Surgery

A Statistical Analysis of Cardiac Output During and Following Surgical Operations

ALFRED HEILBRUNN, M.D.,* and

WILLIAM SEEMAN, PH.D.,** *Kansas City*

THE CARDIAC INDEX DATA to be presented and analyzed in this paper were obtained in the course of a study carried out at the University of Kansas Medical Center. The clinical characteristics of this study are described in considerable detail elsewhere: the subjects, the apparatus, the method, and some clinical aspects of the study findings.¹ It is our purpose in this paper to present a statistical analysis not elsewhere presented.

Briefly, the changes in cardiac output preceding, during, and following operation were studied in a group of unselected patients. The method used was the indicator dilution technic. This method employs the introduction of a known quantity of indicator agent into the blood stream as a bolus and the measurement of its concentration following initial passage through the heart and lungs. From this determination and the time of passage, the dilution of the indicator, and hence the blood flow through the heart and lungs, can be calculated.²

Table 1 presents the cardiac index data for ten patients under the five different conditions. There were twelve patients in the original study, but for two of these twelve patients the data were missing from one or another of the conditions. The data for these two patients were therefore not included in the analysis. Where more than one reading was obtained for any patient the mean was computed as a more precise measure of the variable. The figures in parentheses indicate the *rank* order of the measure obtained; i.e., the lowest measure for each patient is assigned a rank of one, the next a rank of two, etc. Since there were five different conditions under which measures were derived for each patient, these measures are ranked in the table from one to five. The reason for assigning these ranks will be discussed below, in connection with the statistical analysis.

Table 2 presents the analysis of variance data derived from the original data in Table 1. The F ratios are both significant at the .01 level of confidence. This indicates, first, that the measures derived under the different "treatment conditions" (i.e., the dif-

ferent conditions under which the measures were obtained—e.g., B, PI, etc.) are reliably different; which is to say that the differences attributable to these varied conditions are too great to be accepted as "chance" differences, and are properly to be considered as "real" differences, brought about *not* by chance fluctuations of the measures but by the conditions themselves. Table 2 indicates, secondly, that the differences from individual to individual for the ten patients in the study are also reliable and real differences, and again are not attributable to chance fluctuations in the cardiac index measures. To summarize: The measures are reliably different for both the different *conditions* and the different *patients*.

Data on the cardiac index under a variety of specified conditions are analyzed. The results of this analysis indicate that there are statistically reliable differences between individuals and between certain of the conditions.

The analysis of variance test indicated in Table 2 is one of the more powerful of the statistical tests available, and it is for this reason that the particular statistical technic was applied. It requires, however, some knowledge of the way in which cardiac index measures are distributed in the general population; and more specifically, it assumes that the distribution follows the normal curve (bell-shaped curve). Assuming that cardiac index measures are, indeed, distributed in this way, the use of the analysis of variance technic is appropriate. However, a second assumption involved is the assumption that the standard deviations are also comparable for the different "treatments" and for the different individuals or patients. To protect against any error which might derive from a failure to meet this condition, we chose to submit the data to another type of analysis, using this time, a non-parametric statistic; i.e., one which is less powerful but which makes no assumptions concerning the way in which these measures are distributed in the general population. For this test the data need to be converted to ranks, and the analysis of the ranks provides the statistical test. It is for this reason that the original data in Table 1 were con-

* Department of Surgery, University of Kansas School of Medicine.

** Department of Psychiatry, University of Kansas School of Medicine.

TABLE 1

CARDIAC INDEX FOR TEN PATIENTS UNDER CONDITIONS BEFORE SURGERY (B), POSTINDUCTION (PI), DURING PROCEDURE (DP), RECOVERY ROOM (RR), AND POSTOPERATIVE (PO)

| Case No. | B | PI | DP | RR | PO |
|----------|----------|---------|---------|---------|---------|
| 1 | 3.04(4)* | 2.01(1) | 2.14(2) | 3.07(5) | 2.85(3) |
| 2 | 2.71(4) | 1.83(1) | 2.00(2) | 2.14(3) | 3.31(5) |
| 3 | 4.45(5) | 3.28(1) | 3.65(2) | 4.37(4) | 3.94(3) |
| 4 | 4.24(3) | 2.99(1) | 3.87(2) | 4.19(5) | 4.34(4) |
| 5 | 3.66(4) | 3.73(2) | 3.26(1) | 4.99(5) | 3.36(3) |
| 6 | 3.27(4) | 2.31(2) | 2.59(3) | 1.68(1) | 4.11(5) |
| 7 | 2.65(2) | 2.42(1) | 3.61(5) | 3.44(4) | 3.40(3) |
| 8 | 3.05(4) | 2.22(1) | 3.01(3) | 4.68(5) | 2.89(2) |
| 9 | 4.04(5) | 3.03(1) | 3.33(3) | 3.80(4) | 2.92(2) |
| 10 | 4.18(4) | 2.66(2) | 2.38(1) | 4.41(5) | 3.64(3) |

* Numbers in parentheses indicate rank order of the cardiac index values under the different conditions. E.g., for Case No. 1, 2.09 (PI) is the lowest value, 2.14 next, etc. These rank values are used in the non-parametric analysis indicated below.

TABLE 2
ANALYSIS OF VARIANCE

| Sources of Variation | Sum of Squares | Degrees of Freedom | Variance | F Ratio |
|-------------------------------|----------------|--------------------|----------|---------|
| "Treatments" (B, PI, etc.) | 8.243 | 4 | 2.061 | 6.40* |
| Individuals | 14.710 | 9 | 1.634 | 5.07* |
| Remainder | 11.619 | 36 | .322 | |
| Total | 34.572 | 49 | | |

* Significant beyond .01 level.

(NB. The purpose of this analysis of variance technique is to determine whether there is an *overall* difference among several sets of measures. The greater the differences among conditions and individuals, the larger the figures in column 2. Column four figures are obtained by dividing column two by column three figures. The F ratio is designed to tell whether the variation (i.e., differences) attributed to conditions and to individuals are significantly greater than *chance* variations, as represented in the remainder. Consequently, the F ratios in the last column are obtained by dividing each of the variance figures in column four by .322. The statistical significance of these values for F is then determined by consulting the appropriate table of F values.)

verted to rank order. It turns out that with our data the X^2_r (the statistic for the analysis of variance of ranks) is 21.44; and the tabled value for the statistic indicates that this is beyond the .01 significance level. It therefore seems quite safe to claim that we have demonstrated real differences over the conditions and the patients.

Having established these two kinds of differences, we next ask the question: Are there some conditions for which the measures are more "alike" than for other conditions? The analysis designed to answer this question is presented in Table 3. The statistic used here is the Wilcoxon Matched Pairs Test. This table suggests that we may be most confident about the differences between B and PI conditions, between PI and PO conditions, and between PI and RR conditions. On the other hand, these Wilcoxon values indicate that we have not demonstrated differences in the following: between B and RR conditions, between B and PO conditions, between DP and PO conditions and between PO and RR conditions.

TABLE 3
DISTRIBUTION OF WILCOXON T VALUES FOR DIFFERENCES BETWEEN CARDIAC INDEX VALUES FOR DIFFERENT SPECIFIED CONDITIONS

| | B | PI | DP | RR | PO |
|----|---|-----|-------|------|-----|
| B | | 1** | 9† | 23 | 25 |
| PI | | | 10.5† | 2** | 3** |
| DP | | | | 6.5* | 10 |
| RR | | | | | 17 |

** Indicates highly significant difference (.01 confidence level).

* Indicates significant difference (.05 level).

† Barely misses level of statistical significance.

Summary

We have presented in this paper a statistical analysis of data on cardiac output in surgery, in the recovery room, and under postoperative conditions. The method employed was the indicator dilution technic. The analysis of variance statistic indicates a reliable difference in cardiac output for the five conditions described in the paper. The statistical analysis also indicates significant differences in cardiac output from patient to patient. The Wilcoxon matched pairs statistic was used to indicate which of the five conditions could be considered as "most different."

References

1. Heilbrunn, A., and Allbritten, F. F., Jr.: The Cardiac Output During and Following Surgical Operations, *Ann. of Surg.* 152:197-210, 1960.
2. Hetzel, P., Swan, H. J. C., Ramirez De Arellano, A. A. R., and Wood, E. H.: Estimation of Cardiac Output From First Part of Arterial Dye Dilution Curves, *J. Appl. Physiol.* 13:92-96, 1958.

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Carcinoma of the Liver

A Report on 31 Cases

COLVIN H. AGNEW, M.D.,* *Kansas City*

PRIMARY HEPATIC NEOPLASMS have been positively diagnosed in 31 patients in this hospital during the past decade. The most unique feature in this series has been the high incidence of children (8/31). My attention became focused upon this disease in Kansas when two children (cases 3 and 4) were referred within a short period of time for radiation therapy. An account of the pediatric group is being prepared. Approximately 10,000 malignancies have been registered here during this time. This figure includes approximately fifty cases of carcinoma of the gall bladder and common bile duct. Thus, we are dealing with a rare tumor even in a teaching hospital. Hepatic cancer is notably more common in certain groups in their native habitat (Bantu and Oriental).^{1, 4, 6} This small series has shown many of the features recorded in larger series.

Material

The clinical records have been reviewed on eight children and 23 adults. The sex and race by age distribution are summarized in Table I. It is curious that no Negro children are included. There is a general 2:1 preponderance of male over female patients.

Diagnosis

The diagnosis was established from tissue acquired either at exploratory laparotomy or at autopsy, except case 27 (needle biopsy). The diagnosis is that registered by the pathologist reporting on the material. It is summarized in Table II.

The inherent perplexity in microscopic diagnosis is reflected in case 13 (WB). A needle biopsy was interpreted as representing a hemangioblastoma; however, at autopsy the diagnosis was changed to carcinoma predominantly bile duct type with cirrhosis.

The difficulty of establishing the primary site of origin is represented in Case 21 (IB). At surgery it was felt that this patient had a primary pancreatic tumor with hepatic metastasis. The surgeon performed a Roux-Y operation. It later developed that this patient had a primary liver cancer (large cell type).

Classification

Edmonson and Steiner⁴ advocate the terminology

"liver cell carcinoma" and "bile duct carcinoma." These terms have essentially the same meaning as the terms chosen by Berman, "hepatocellular carcinoma" and "cholangiocellular carcinoma." This series has been classified according to this terminology. The numerous synonyms for these two types of cancer have been included (*Table II*). Edmonson and Steiner review the problem of classification and justify their choice. To a non-pathologist this system has appeal and much to recommend its use.

Thirty-one cases registered in the past decade have been reviewed. The material has been reviewed primarily to study the effect of therapy upon life expectancy. The only specific therapy that has been really effective is surgery. One case appears to be alive without disease. One child seems to have been remarkably benefited by nitrogen mustard. Indications for radiation therapy are not clear. Eight children are in this series. Their inclusion has not seemed to alter the data.

Pathology

Experienced liver cell pathologists are able to divide primary liver cancer mainly into two groups: Liver cell cancer and bile duct type cancer.

Grossly these livers frequently have multinodular surfaces, but may retain their hobnail appearance. Upon cut section the surface may reveal various sized nodules of varying colors from gray to the more normal light brown (liver color). As the intrahepatic lesions replace normal hepatic cells, the fibrous septa may be retained, yet producing enlargement of the liver through gross intra-portal invasion.

Microscopically irregular cords of tumor cells crowd adjacent liver parenchyma. These cells merge almost imperceptibly with uninvolved cells. It would be inappropriate to pursue the microscopic distinction between the two major cell types. However, in the more well differentiated cases the large polyhedral cells resemble normal hepatic cells in the liver cell type. In the bile duct type there is an adenomatous

* From the Department of Radiology, University of Kansas School of Medicine.

formation which is usually distinguished from the liver cell type.

Clinical Course

An upper abdominal mass present for one to three months occasionally associated with ascites, and an insidious upper abdominal discomfort or pain were regularly present. Jaundice was rare. Abnormal physical examination was usually confined to the enlarged liver. The x-ray film often revealed an elevated right hemidiaphragm, hepatomegaly, and occasionally pulmonary metastasis. The laboratory data usually did not show any abnormal findings unless the cirrhosis was quite severe or obstructive jaundice was present.

After the diagnosis treatment was usually symptomatic. Excision possibly contributed to the control in Case 23 (RT). Usually nitrogen mustard and radiation were not of value. Nitrogen mustard apparently has contributed significantly to the survival of case No. 1 (JB). Eighteen months after treatment she is well, attending school, and gaining weight; however, the liver is slowly enlarging. Shrinkage of the liver neoplasm was observed in cases 4 (RP) and 8 (FL). Supportive therapy frequently included salt restriction, cortisone, bed rest, improved diet and vitamin K. Most of the patients died within three months from the time the diagnosis was established.

Three clinical examples will be given in summarized form to emphasize the clinical courses.

Short Time Survivor With Responsive Tumor

Case 8. Nine days after birth this male infant developed "swelling of the abdomen." Two weeks before admission he developed a fever and continued with daily temperature elevations despite antibiotic and aspirin therapy. He had a protuberant abdomen, and the liver was palpable six fingers below the right costal margin. After the liver biopsy, he was treated with 250 KV x-radiation (2,000 rDn/15 days), Meticorten 5 mgm. t.i.d. and Achromycin 250 mgm. daily. The liver markedly decreased in size during the radiation. The swelling in the lower extremities gradually disappeared. However, 15 days after

radiation was started and after temporary abdominal improvement, vomiting became a serious problem. Two days later ptosis of the left upper lid was noted. He lived another 15 days on supportive therapy.

Comment: This patient exhibited local response to radiation which in our experience is unusual. He apparently died of intracranial metastasis. He had an osseous metastasis to a tibia demonstrated by x-ray film. This was not treated.

Short Course Without Response

Case 9. Two months before admission, this 20 year old Negro noted a feeling of fullness in his abdomen after eating, and lost 25 pounds. He became aware of a right lower quadrant mass. One month before admission, he was seen elsewhere and told that he had an enlarged liver and "spots on his lungs." Abdominal examination revealed a huge nodular liver extending to the iliac crests. After liver biopsy he received radiation to the liver (2,000 rDn/50 days). Improvement was not noted. There was a steady deterioration in his condition with the terminal development of an obstructive jaundice. He was afebrile.

Comment: Except for the youthfulness of this patient he represents a rather typical patient and course. He was a well individual until three months before his death, when he noted a vague abdominal discomfort and an abdominal mass; at that time he had advance secondary deposits. The treatment was without benefit.

Unusually Long Survivor

Case 23. This 59 year old Negro housewife was first seen at the Medical Center in 1954, complaining of right upper quadrant pain for five years and an abdominal mass for two years. She had been seen at the Mayo Clinic in May, 1950, and it was their opinion at that time that the upper abdominal mass was most likely an anomalous lobe of the liver and did not advise surgery. In 1954 (after being advised here) to have surgery, an exploratory laparotomy was performed in November, 1954, at St. Margaret's

TABLE I

| Age | 14 | 15-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | 80 |
|-----|-----|-------|-------|-------|-------|-------|-------|-----|
| Sex | M F | M F | M F | M F | M F | M F | M F | M F |
| W | 5 3 | 1 0 | 0 1 | 1 0 | 1 2 | 3 1 | 4 1 | 1 0 |
| N | 0 | 1 | 0 | 0 | 1 1 | 1 1 | 1 0 | 0 0 |



Figure 1. Case 9. Multiple pulmonary metastases were present when first seen.

Hospital with partial hepatectomy and cholecystectomy.

Her next hospital admission (KUMC) April 1958 revealed a recurrence of the right upper quadrant mass; her chief problem, however, was congestive heart failure. She was treated symptomatically until her death November 7, 1959.

Comment: This intriguing patient represents one

of the few well documented long survivors. The tissue was reviewed by several pathologists. Steiner and Higginson classified this lesion as a hepatocellular carcinoma. Steiner made the additional comment that he had seen one other case which had survived nine years following left lobe resection succumb with recurrence.

Discussion

The outstanding feature of this disease is the inexorable downhill course. Most accounts of the clinical course indicate that death occurs within three months following the onset of symptoms for hepatocellular carcinoma and six months for the bile duct type carcinoma. There are two notable exceptions in this series. One has been presented in a brief summary. Case 29 (AM) had one-third of the liver removed. This patient is alive and well more than two years after surgery. This could represent a cure.

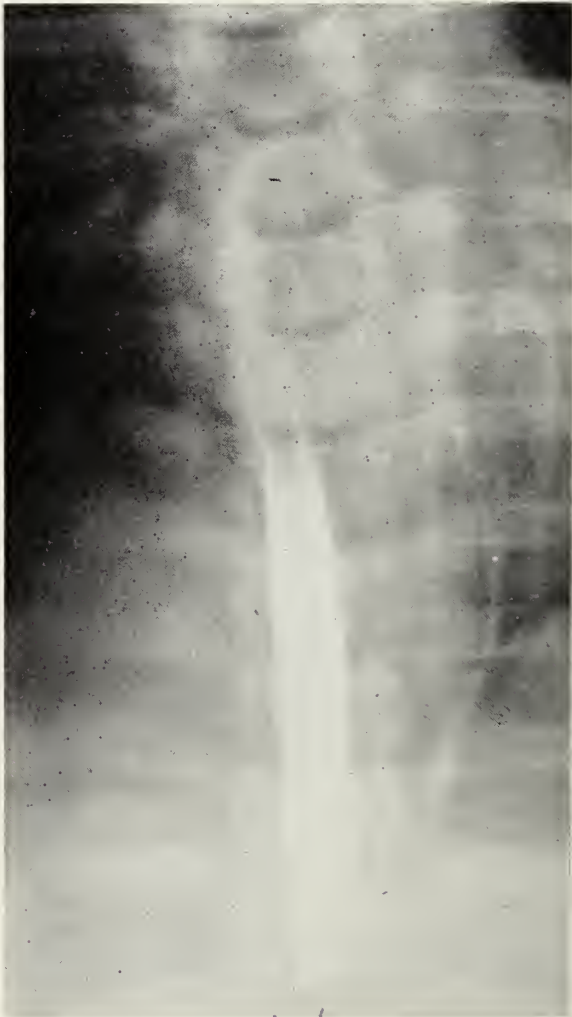


Figure 2. Case 4. Metastases to the spinal cord appeared 3 months after hepatic radiation had been completed.

TABLE II

| | Male | Female | Total |
|--|------|--------|-------|
| Liver cell carcinoma ... | 15 | 7 | 22 |
| (Hepatocellular carcinoma, hepatic cell carcinoma, trabecular carcinoma, hepatoma, malignant hepatoma, carcinoma simplex, carcinoma solidum, hepatoblastoma.) | | | |
| | Male | Female | Total |
| Bile-duct type | 3 | 2 | 5 |
| (Cholangioma, malignant cholangioma, cholangiocellular carcinoma, adenocarcinoma, duct cancer, alveolar carcinoma, carcinoma adenomatosum, columnar cell carcinoma.) | | | |
| | Male | Female | Total |
| Mixed | 1 | 0 | 1 |
| (Duplex, intermediate, carcinoma of dual origin, cholangiohepatoma, combined cell type, hepatobiliary carcinoma.) | | | |
| | Male | Female | Total |
| Sarcoma | 2 | 1 | 3* |
| (Liposarcoma, case No. 3, case No. 7.) | | | |

* Case 7. Anaplastic tumor in regenerated fibrotic liver.

CLINICAL MATERIAL

| <i>Case</i> | <i>Age, Sex, Race</i> | <i>Diagnosis</i> | <i>Duration S/S Before Treatment</i> | <i>Treatment</i> | <i>Effect of Treatment</i> |
|-------------|-------------------------------|-------------------------|--|---|----------------------------------|
| 1 JB | 14 WF | Hepatic | Mass 3-4 months | HN ₂ | +18 months well; mass enlarging |
| 2 CK | 3 WF | Hepatic | Mass 1 month | Exploration | Died 4 hrs. after surgery |
| 3 MP | 10 WF | Fibromyoxoma Sarcoma | Mass 2 months Precocious puberty | Radiation: 3000 rDn/24 days; HN ₂ | Died 4 months after treatment |
| 4 RP | 3 WM | Hepato- blastoma | | Radiation | History abstracted |
| 5 DD | 2 WM | Hepatic | Gradual enlarge- ment | Vit. K | Died 1 month |
| 6 JH | 1 WM | Hepatic | Mass 1 month | Partial hepatectomy Radiation: 3100 rDn/34 | Died 5 months |
| 7 RK | 1 LWM | Sarcoma | Mass 3 months | None | Died present admission |
| 8 FL | 6 wks. WM | Hepatic | Mass | Radiation: 2000 rDn/15 days | Died 15 days |
| 9 JP | 20 CM | Hepatic | Fullness 2 months | Radiation: 2000 rDn/50 days | Died 1 month |
| 10 MM | 33 WF | Hepatic | Pain RUQ 5 months | None | Died 3 months |
| 11 RC | 44 WM | Hepatic | 6 months chest pain | Exploration | Died 1 day after surgery |
| 12 LO | 53 WM | Hepatic | Pain RUQ duration vague | HN ₂ portal vein | Died 5 months |
| 13 WB | 59 CM | Bile duct type | Ascites duration vague | None | Died 1 week |
| 14 MW | 56 WF | Hepatic | RUQ mass 18 months | None | Died 2 months |
| 15 VP | 50 WF | Bile duct type | Jaundice 2 months | Radiation advised | Died 5 months |
| 16 NM | 59 WM | Hepatic | Mass duration 2 months | Dietary | Died 2 months |
| 17 NM | 51 CF | Mixed type | Mass one month | None | Died 5 months |
| 18 ES | 68 WM | Bile duct type | Weakness 4 months | None | Died 1 month |

CLINICAL MATERIAL—Continued

| <i>Case</i> | <i>Age, Sex, Race</i> | <i>Diagnosis</i> | <i>Duration S/S Before Treatment</i> | <i>Treatment</i> | <i>Effect of Treatment</i> |
|-------------|-------------------------------|-------------------|--|--|-----------------------------|
| 19 WM | 69 WM | Bile duct type | 1 year epigastric dis. | Dietary | Died 2 months |
| 20 HS | 65 WM | Hepatic | Jaundice 3 months | None | Died 3 months |
| 21 FF | 67 CM | Hepatic | Admitted in coma | None | Died 24 hours |
| 22 IB | 61 WF | Hepatic | Mass 3 months | Roux-Y | Died 2 months |
| 23 RT | 64 CF | Hepatic | Mass 3½ years | Partial hepatectomy | History abstracted |
| 24 WM | 71 WM | Hepatic | Mass 4 months | None | Died esophageal bleeding |
| 25 FG | 76 CM | Hepatic | Mass 3 months | None | 1 month |
| 26 RS | 71 WM | Hepatic | Mass 2 weeks | None | Died two weeks |
| 27 AK | 76 WM | Hepatic | Swelling | HN ₂ portal vein Cortisone, chlorambucil | Died 3 months |
| 28 AA | 72 WM | Liposarcoma | Mass 6 months | Radiation: 2000 rDn HN ₂ | Died 2 months |
| 29 AM | 71 WF | Hepatic | Mass 8 months | 1/3 liver removed | Alive and well 2+ years |
| 30 FS | 73 WF | Bile duct type | Gall bladder trou- ble—6 months | None | Died 2 weeks |
| 31 PM | 81 WM | Hepatic | Discomfort—dura- tion vague | None | Died 5 months |

Radiation has been conspicuously unsatisfactory in this series. Even when reduction in liver size was observed, clinical improvement was only temporary. This experience is in sharp contrast to the value of radiation cited by Phillips.⁹ It is worth noting that Phillips recommends higher doses than were usually given in this institution. It is perhaps important to note that his series (as pointed out by him) was unique in several respects. Perhaps radiation is indicated in those patients who have had a longer history before diagnosis.

The potential value of the operative cholangiogram

has not been previously emphasized. The film on one patient on whom cholangiography was done was not available for review; the report, however, describes intrahepatic obstruction which might be anticipated. The information contributed by this method may provide prognostic data.

The difficulty in making the diagnosis either at surgery, by needle biopsy, or biopsy material obtained at exploratory laparotomy has been emphasized by others. Examples have been cited which typify the difficulty of diagnosis encountered in incomplete anatomic studies. Higginson,⁷ on the other hand, em-

phasizes that it is a valuable method of diagnosis, particularly in an endemic area.

As in most series, cirrhosis was the conspicuous feature. The association of cirrhosis and liver cancer has prompted numerous speculations.^{4, 5, 8, 11} Many have seized the opportunity to rationalize along the line that the regeneration opens a pathway to chaotic cellular proliferation. Higginson suggests that infectious hepatitis rather than racial history or dietary habits may be an important factor in the development of cirrhosis.⁸ It should be mentioned, however, that only a small proportion (less than 5 per cent) of livers showing Laennec's cirrhosis also have cancer. On the other hand, Roth and Duncan¹¹ reported upon the occurrence of a primary carcinoma after giant cell hepatitis of infancy. The possibility of a virus hepatitis in an especially susceptible population with perhaps hyper-response of regeneration has been suggested.⁸ Despite a century of study the association of cirrhosis and primary cancer of the liver leaves many unanswered questions.

Functional hepatic tumors are apparently quite rare. Reeves, *et al.*,¹⁰ described an eight year old boy with precocious puberty associated with a hepatoma, who died about seven months after diagnosis. A recent clinical pathologic conference (Case No. 46451)³

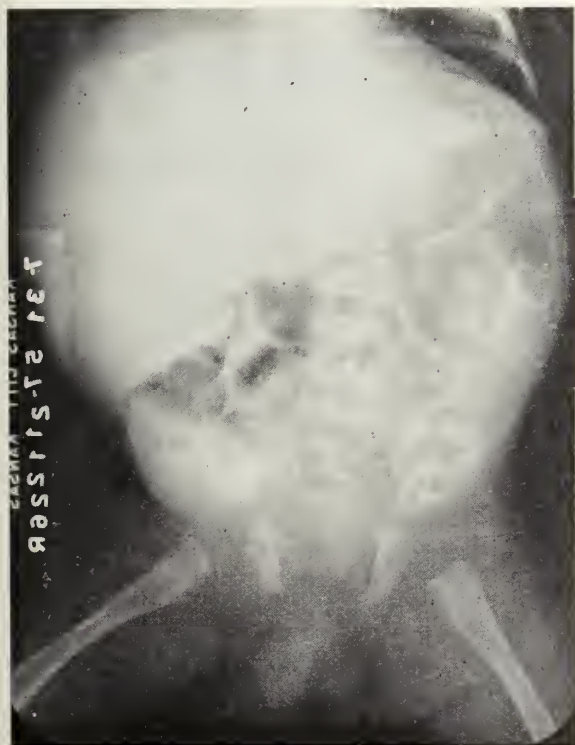


Figure 3. Hepatomegaly was commonly present displacing colon downward and elevating right hemidiaphragm.

at the Massachusetts General Hospital described a case in a two year old boy who was treated with actinomycin D and estrogen. He died about three months after exploration. Our Case No. 4 (RP) was similar; he did have a somewhat longer clinical course.

The importance of distinguishing between liver cell carcinoma and bile duct carcinoma may be of more than academic importance. Edmundson and Steiner have shown that the life expectancy is doubled in bile duct type. The series is too small to make a significant observation in this regard. The missing cell type of origin in previous series has been supplied by Steiner and Higginson.¹² Their description of a liver tumor arising from cholangioles completes the anticipated cell type. This series includes three sarcomas, Case 3, a fibromyxosarcoma, Case 7, "sarcoma," and Case 28 a liposarcoma. Their inclusion has not been an oversight; their clinical course was essentially the same as tumors that have derived from the epithelial liver elements.

It is my understanding that no estimate has been made of the relative number of cells at risk, i.e., whether the present ratio between liver cells, bile duct cells, and cholangiocellular carcinomas reflects the ratio of normal parent cells at risk. The important question raised by Higginson is, what is (are) the factor (s) responsible for the disproportionately higher ratio of liver cell to bile duct carcinoma between the Bantu and metropolitan U. S. A. Citizen? The ratio in males of bile duct type cancers is given⁹ as 2.9:2.3 while the ratio between liver cell type cancer was 106.3/11.4. Thus, it has a bearing upon the etiology and raises the hope that there may be a preventable factor (s) in the Bantu environment.

References

1. Berman, C.: Primary Carcinoma of the Liver in the Bantu Races of South Africa. *South Africa Jour. Med. Science*, Vol. 5, 54-72, 1940.
2. Berman, C.: The Clinical Features of Primary Carcinoma of the Liver in the Bantu Races of South Africa. *South Africa Jour. Med. Science*, 5:92-109, 1940.
3. Case 46451, CPC: *New Eng. Jour. Med.*, 10 XI, 263:965-971, 1960.
4. Edmondson, H. A., and Steiner, P.: Primary Carcinoma of the Liver. *Cancer*, 462-503, July, 1954.
5. Halpert, Béla, and Erickson, Ethel E.: Carcinoma of the Liver. *Cancer*, Vol. 8, 992.
6. Higginson, John, and Oettle, A. G.: Cancer Incidence in the Bantu and "Cape Colored" Races of South Africa.

(Continued on page 361)

Editor's Note: This article was submitted to THE JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, THE JOURNAL was able to publish only half of the articles submitted.

The remaining papers will appear in the upcoming issues. THE JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.

Cholesterol

The Metabolism of Cholesterol in the Central Nervous System

HAROLD J. NICHOLAS, Ph.D.,[†] *Kansas City*

THE ADULT CENTRAL NERVOUS SYSTEM contains one of the largest concentrations of cholesterol in the animal body. Yet this large mass of sterol is singularly different from cholesterol in most other tissues* in that it is metabolically inert, i.e., it undergoes no turnover. It seems probable that the purpose of this metabolic inertness lies in the function of central nervous system cholesterol as a structural unit of the myelin sheath. However, this assumption does not afford any clue to the basic reason for the lack of turnover. Why should this particular mass of sterol remain segregated from the metabolic forces which keeps other cholesterol body pools in constant activity?

The first real insight into the biochemistry of brain cholesterol came from the observations of Waelsch *et al.*,² who fed and injected deuterium-labeled H₂O to adult rats and found appreciable deuterium in cholesterol of all organs examined except the brain. Similarly, when D₂O was fed and injected into a pregnant rat and into the newborn animals, deuterium was found in cholesterol of all young rat tissues examined, including brain.³ Since D₂O is freely permeable to the blood-brain barrier, there was no question in these experiments that the label was available to every organ. It was concluded that in the young brain, cholesterol is actively metabolized whereas in the adult organ cholesterol metabolism ceases or exists at a very low level. Labeled acetate given intraperitoneally to an adult rat produced no labeled brain cholesterol.⁴ The possibility of the acetate not passing the blood-brain barrier seems not to have been considered in this experiment, which therefore has no valid interpretation. C¹⁴ was not found in cholesterol of the adult cat and monkey brain after perfusion of this organ with 1-C¹⁴-sodium acetate by the Geiger-Magnes technique.⁵ Recent work by Davison^{6, 7} with C¹⁴-labeled cholesterol injected into young animals has indicated that cholesterol which enters the brain retains its C¹⁴ for long periods. All of these *in vivo* experiments have been supported by work with adult brain tissue *in vitro*. 1-C¹⁴-sodium acetate incubated with adult rat brain slices gave cholesterol containing no C¹⁴ whereas other tissues tested, including new-

born rat brain tissue, produced C¹⁴-labeled cholesterol.⁸ From at least one published experiment it appears that adult human brain tissue is as refractory as adult rat brain in its capacity to synthesize cholesterol *in vitro*.⁹

The sum of these observations has led to the conclusion that in the adult brain, cholesterol undergoes little or no turnover. It seems of fundamental interest and perhaps of future practical importance to investigate why this sterol pool behaves in this manner.

Cholesterol metabolism in the central nervous system has been reviewed, with particular reference to the somewhat unique behavior of this substance in the adult organ. Data have been presented indicating that adult rat brain tissue can perform cholesterol biosynthesis *in vitro*. These data have been used to support the hypothesis that there is a "block" in the metabolism of the sterol in the adult, intact organ and that this block is at the catabolic rather than the synthetic level.

A new approach to this problem developed when it was found that 2-C¹⁴-sodium acetate injected directly into the brain (intracerebrally) is incorporated markedly into central nervous system cholesterol in contrast to result obtained when acetate is administered to brain tissue by other methods.¹⁰ The phenomenon has been studied in some detail and occurs in the absence of the liver and viscera.¹¹ Later another group reported that C¹⁴-labeled pyruvate and 1-C¹⁴-sodium acetate are incorporated into adult brain when injected intracisternally.¹² 2-C¹⁴-mevalonic acid given intracerebrally to adult rats is incorporated astonishingly well into adult brain cholesterol, and squalene turnover can be demonstrated readily following injection of this substrate.¹³ In all of these experiments it was shown that although active synthesis occurred within the intact organ, the labeled cholesterol so-obtained remained labeled for an indefinite period. It has been observed in our laboratory that following the intracerebral injection of 2-C¹⁴-

[†] Department of Obstetrics and Gynecology, University of Kansas School of Medicine.

* Cholesterol of adipose tissue seems to be metabolically inert like adult brain cholesterol.¹

sodium acetate into adult rats (and cats*), cholesterol in all parts of the central nervous system remain labeled for as much as a year.¹¹

How does one interpret these observations? On the one hand, cholesterol synthesis can be demonstrated in adult brain, yet the cholesterol so-obtained subsequently undergoes no turnover.** It has been suggested in a recent review¹⁴ that "all these experiments are in agreement and amplify the previous conclusions that cholesterol is synthesized in the central nervous system of young animals, but that synthesis occurs to a much smaller extent, if at all, in adults.† This statement, although correct, seems unimaginative and misses an important point brought forth by the recent experiments demonstrating cholesterol biosynthesis on intracerebral injection of several substrates. Certainly the prolonged retention of C¹⁴-cholesterol in these experiments substantiates earlier information which indicated that cholesterol in the adult brain is inert. However, if synthesis *can* occur in the adult under the conditions established by intracerebral injection, then it is implicit that the synthetic capacity is inherent in the tissue but is *held in check* under normal circumstances. Thus a new

facet has been added to the problem. Where before the cholesterol-metabolizing capacity was considered absent, possibly because of the lack of proper enzymes,¹⁶ the inertness of adult brain cholesterol may now be considered due to restraining factors: cholesterol metabolism is "blocked." From a wide variety of experiments it has been concluded that the blood-brain barrier plays a significant role in the over-all metabolism of cholesterol in the central nervous system.¹⁷ It has also been suggested that in the normal, intact central nervous system there is a "block" in cholesterol metabolism and that this block is essentially at the catabolic rather than the synthetic level. According to this hypothesis the capacity for synthesizing cholesterol exists in the adult brain and actual turnover might occur were the catabolic stage of the latter process not blocked. Since this is at present only a working hypothesis it would be of little value to discuss whether this catabolic block may be biochemical, anatomical (a function of the blood-brain barrier) or both.

Mitigating against this hypothesis is the observation that C¹⁴-labeled sodium acetate is incorporated poorly, if at all, into adult brain tissue cholesterol *in vitro*.⁸ The incorporation of 2-C¹⁴-mevalonic acid into adult brain cholesterol *in vitro* has not been reported, although cholesterol biosynthesis in 10-day old rat brain tissue has been studied with this substrate.¹⁸ Literature on the metabolism of acetate by cerebral tissue is somewhat confusing.^{19, 20, 21, 22} The results range from those of Scott and Libet¹⁹ who reported that "acetic acid has no effect on the oxygen uptake or R.Q. and is not utilized by brain suspen-

* In cats for at least 4 months; unpublished observations.

** One must assume that in these experiments either a net increase in total cholesterol occurred or that during the brief period in which cholesterol biosynthesis was accomplished actual cholesterol turnover was in progress. The difficulty in demonstrating experimentally which condition actually holds is obvious.

† The conclusion which prompted this expression was based on several other experiments besides those dealing with the intracerebral injection of acetate, which at the time has only been published in abstract.^{10, 15}

TABLE I
INCORPORATION OF 2-C¹⁴-SODIUM ACETATE AND 2-C¹⁴-SODIUM MEVALONATE INTO ADULT RAT ORGAN NON-SAPONIFIABLE FRACTIONS *IN VITRO*: BRAIN AND LIVER†

| Exp. | Tissue | Total Counts/Minute in Fraction‡ | | | Substrate |
|------|--------|----------------------------------|-----------------|---------------------|--------------------------------------|
| | | ORIGINAL NON-SAPONIFIABLE | CRUDE SQUALENE* | CRUDE CHOLESTEROL** | |
| 1. | Brain | 23,860 | 210 | 800 | 2-C ¹⁴ -sodium acetate |
| 2. | Liver | 9,660 | 1,128 | 2,780 | |
| 3. | Brain | 23,000 | 9,636 | 2,760 | 2-C ¹⁴ -sodium mevalonate |
| 4. | Liver | 209,820 | 54,696 | 11,040 | |

† Each experiment was performed by incubating 2 grams of tissue from 1 year old discarded breeder rats (290-340 Gms.) at 37° for 4 hours. Each vessel also contained 7 ml. phosphate buffer, pH 7.4, 20 mg. nicotinamide, 10 mg. diphosphopyridine nucleotide and 20 mg. MgCl₂ · 6H₂O. Exps. 1 and 2: 20 µc. C¹⁴-sodium acetate, sp. act. 6.02 mc/mM. Exps. 3 and 4: 5 µc. C¹⁴-sodium mevalonate, sp. act. 2.48 mc/mM as the dibenzylethylenediamine salt. Tissues for Exps. 1 and 2 came from the same animal, as did those for Exps. 3 and 4.

‡ All C¹⁴ determinations were performed with a windowless, gas-flow counter on infinitely thin samples.

* Obtained by chromatographing the non-saponifiable fraction on alumina and eluting with low boiling petroleum ether.

** Following the removal of the "squalene" fraction, this fraction was obtained by eluting the alumina with 1:1 acetone-ethyl ether.

TABLE II

INCORPORATION OF C¹⁴ INTO DILUTED SQUALENE AND CHOLESTEROL OF BRAIN AND LIVER FOLLOWING INCUBATION OF ADULT TISSUE WITH LABELED SUBSTRATES

| Exp. | Tissue | Specific Activity,† c./min./mg. | | Source of C ¹⁴ |
|------|--------|---------------------------------|----------------------------|--------------------------------------|
| | | SQUALENE* | CHOLESTEROL DIBROMIDE** | |
| 1. | Brain | 11 | 18 (22) | 2-C ¹⁴ -sodium acetate |
| 2. | Liver | 41 | 126 (181) | |
| 3. | Brain | 273 | 78 (102) | 2-C ¹⁴ -sodium mevalonate |
| 4. | Liver | 1,279 | 5,939 (7,080) | |

† All C¹⁴ values were obtained with a windowless, gas-flow counter on infinitely thin samples.

* Obtained by addition of 50.0 mg. of triple-distilled shark squalene per gram of wet tissue to the crude squalene fractions of Table I, conversion to the hexahydrochloride and crystallization of the latter to constant specific activity from acetone and chloroform-benzene.

** Obtained by precipitating cholesterol as the digitonide from the crude cholesterol fractions in Table I. Free cholesterol was obtained from the digitonides and then converted to the dibromide. The values in parentheses are specific activity of the free sterol prior to conversion to the dibromide.

sions," to a considerably more detailed study in which 1-C¹⁴-sodium acetate was used, and a definite lipogenesis demonstrated for adult brain tissue with this substrate.²² With regard to acetate metabolism and the particular problem in question it is important to distinguish between lipogenesis and respiration. The amount of acetate converted by adult or even term fetal cerebral tissue²¹ to CO₂ is apparently very small. Yet if one considers the data of Majno and Karnovsky²² the amount of acetate converted to "total lipide," though smaller than that of peripheral tissue *in vitro*, is certainly not negligible. These investigators did not consider the contribution of acetate to individual lipides such as cholesterol.

Data illustrating our own approach to this problem and that of cholesterol biosynthesis are shown in Table I. It will be seen that both 2-C¹⁴-sodium acetate and 2-C¹⁴-mevalonic acid are metabolized by adult brain to non-saponifiable material, and this by minced tissue which probably does not represent the most ideal tissue preparation for this organ.* However, a large proportion of the counts in the non-saponifiable fraction produced by acetate is lost on chromatography on alumina, and so these data lose some significance; only relatively few counts were subsequently found in either the crude "squalene" or cholesterol fractions. Data on the conversion of mevalonic acid to squalene and cholesterol by brain tissues are much more significant (*Tables I and II*) because this isoprenoid substance is a direct precursor of cholesterol and is not subject to the multiple metabolic pathways acetate undergoes. A

definite conversion of mevalonic acid to squalene and cholesterol was demonstrated: the specific activities are considerably greater than can be accounted for by occluded blood or other possible complicating factors. (It would seem of little merit at this time to belabor the question of whether the corresponding specific activities from the experiments with labeled acetate are significant.) It has been observed in a number of similar experiments with labeled mevalonic acid that the C¹⁴ in the squalene fractions is greater than in the cholesterol fractions. Although the quantitative aspects of this phenomenon are rather complicated, a simple explanation is available. The squalene→cholesterol conversion following intracerebral injection of mevalonic acid into adult brain is slower than the corresponding reaction in liver,^{13, 23} and this may carry over to *in vitro* experiments also.

From all standpoints the biosynthesis of squalene and cholesterol in adult liver is considerably higher than that in adult brain. Should this be sufficient reason for invalidating the figures obtained from adult brain tissue *in vitro*? We believe not. The liver seems particularly adept at synthesizing cholesterol at a high rate for distribution to the systemic circulation. Comparison of the brain with an organ designed to actively synthesize cholesterol for extrahepatic purposes is therefore not in order. It may be criticized that the degree of synthesis of cholesterol by adult brain tissue *in vitro* does not compare with the same reaction demonstrated *in vivo* by intracerebral injection. This criticism is only weakly valid since the literature is replete with examples where brain tissue does not perform metabolic activities

* Whole brain or tissue slices gave no greater conversion to non-saponifiable material.

in vitro to the same extent it is capable of *in vivo*.²⁴ The present status of these experiments may reflect our inability to find the correct conditions for permitting cholesterol biosynthesis to occur properly *in vitro*. In this regard it should be recalled that at one time²⁵ intestinal tissue was not considered able to synthesize cholesterol *in vitro*. We now know it to be one of the most active tissues in this respect.²⁶

References

1. Feller, D. D.: Metabolism of adipose tissue. 1. Incorporation of acetate carbon into lipides by slices of adipose tissue. *J. Biol. Chem.*, 206:171 (1954).
2. Waelsch, H., Sperry, W. M., and Stoyanoff, V. A.: A study of the synthesis and deposition of lipids in brain and other tissues with deuterium as an indicator. *J. Biol. Chem.*, 135:291 (1940).
3. Waelsch, H., Sperry, W. M., and Stoyanoff, V. A.: The influence of growth and myelination on the deposition and metabolism of lipids in brain. *J. Biol. Chem.*, 140:885 (1941).
4. Bloch, K.: In "A Symposium on Steroid Hormones," Ed. by E. S. Gordan, Univ. of Wisconsin Press, 1950, p. 33.
5. Waelsch, H.: In "Biochemistry of the Developing Nervous System," Proceedings 1st Internatl. Neurochem. Symposium, Oxford. Academic Press Inc., N. Y., 1955, p. 187.
6. Davison, A. N., Dobbing, J., Morgan, R. S., and Wright, P.: The deposition and disposal of (4-¹⁴C) cholesterol in the brain of growing chickens. *J. Neurochem.*, 3:89 (1958).
7. Davison, A. N., Dobbing, J., Morgan, R. S., Wajda, M., and Wright, P.: The turnover of lipids in brain *in vivo*. *Abstr. Intern. Congr. Biochem.*, 4th Meeting, Vienna, Austria, Sept., 1958, p. 208.
8. Srere, P. A., Chaikoff, I. L., Treitman, S. S., and Burstein, L. S.: The extrahepatic synthesis of cholesterol. *J. Biol. Chem.*, 182:629 (1950).
9. Azarnoff, D. L., Curran, G. L., and Williamson, W. P.: Incorporation of acetate-1-C¹⁴ into cholesterol by human intracranial tumors *in vitro*. *J. Nat. Cancer Inst.*, 21:1109 (1958).
10. Nicholas, H. J.: Biosynthesis of cholesterol in the central nervous system. *Federation Proceedings*, 16:324 (1957).
11. Nicholas, H. J., and Thomas, B. E.: The metabolism of cholesterol and fatty acids in the central nervous system. *J. Neurochem.*, 4:42 (1959).
12. McMillan, P. J., Douglas, G. W., and Mortensen, R. A.: Incorporation of C¹⁴ of acetate-1-C¹⁴ and pyruvate-2-C¹⁴ into brain cholesterol of the intact rat. *Proc. Soc. Exp. Biol. Med.*, 96:738 (1957).
13. Nicholas, H. J., and Thomas, B. E.: Intracerebral incorporation of (2-¹⁴C) mevalonic acid into adult rat brain squalene and cholesterol. *Biochim. Biophys. Acta*, 36:583 (1959).
14. LeBaron, F. N.: Neurochemistry, in *Ann. Rev. Biochem.*, 28:579 (1959).
15. Nicholas, H. J., and Thomas, B. E.: Biosynthesis of cholesterol and fatty acids in the adult rat brain. *Federation Proceedings*, 17:450 (1958).
16. Korey, S. R., and Stein, A.: Cholesterol formation in rat brain slices. *Federation Proceedings*, 18:264 (1959).
17. Nicholas, H. J., and Thomas, B. E.: Cholesterol metabolism and the blood-brain barrier: an experimental study with 2-C¹⁴-sodium acetate. *Brain*, In Press.
18. Garattini, S., Paoletti, P., and Paoletti, R.: The incorporation of 2-C¹⁴-mevalonic acid into cholesterol and fatty acids of brain and liver *in vitro*. *Arch. Biochem. Biophys.*, 80:210 (1959).
19. Scott, D. B. M., and Libet, B.: Studies on the metabolism of brain suspension. II. Carbohydrate utilization. *J. Biol. Chem.*, 146:251 (1942).
20. Pardee, A. B., Heidelberger, C., and Potter, V. R.: The oxidation of acetate-1-C¹⁴ by rat tissue *in vitro*. *J. Biol. Chem.*, 186:625 (1950).
21. Vilee, C. A.: The intermediary metabolism of human fetal tissues. *Symposia on Quantitative Biology*, Cold Spring Harbor, 19:186 (1954).
22. Majno, G., and Karnovsky, M. L.: A biochemical and morphological study of myelination and demyelination. I. Lipide biosynthesis *in vitro* by normal nervous tissue. *J. Exp. Med.*, 107:475 (1958).
23. Loud, A. V., and Bucher, N. L. R.: The turnover of squalene in relation to the biosynthesis of cholesterol. *J. Biol. Chem.*, 233:37 (1958).
24. McIlwain, H.: "Biochemistry and the Central Nervous System," 2nd Ed., J. & A. Churchill, LTD., London, England, 1959.
25. Bloch, K., Borek, E., and Rittenberg, D.: Synthesis of cholesterol in surviving liver. *J. Biol. Chem.*, 162:441 (1946).
26. Schneider, P. B., Clayton, R. B., and Bloch, K.: Synthesis of lanosterol *in vivo*. *J. Biol. Chem.*, 224:175 (1957).

Editor's Note: This article was submitted to THE JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, THE JOURNAL was able to publish only half of the articles submitted.

The remaining papers will appear in the upcoming issues. THE JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.

Carcinoma of the Liver

(Continued from page 357)

Jour. of the National Cancer Institute, Vol. 24, No. 3, 1960, March.

7. Higginson, John, M.B., and Keeley, K. J.: Liver Disease in the South African Bantu. *Gastroenterology*, Vol. 38, No. 3, March, 1960.

8. Higginson, John: Pathogenesis of Liver Cancer in the Johannesburg Area (S. Africa). Vol. 13, 1957.

9. Phillips, Ralph, and Muri Kami, K.: Primary Neoplasms of the Liver. *Cancer*, Vol. 13, 714-720, 1960.

10. Reeves, R. L., Tesluk, H., and Harrison, C. E.: Precocious Puberty Associated with Hepatoma. *Jour. Clin. Endo.*, Vol. 19:1651-60, 1959.

11. Roth, Daniel, and Duncan, Peter A.: Primary Carcinoma of the Liver After Giant Cell Hepatitis of Infancy. *Cancer*, 8:986-991, 1955.

12. Steiner, Paul, M.D., and Higginson, John, M.R.C.P.: Cholangiocellular Carcinoma of the Liver. *Cancer*, Vol. 12, No. 4, July-August, 1959.

Mankind are always happier for having been happy; so that if you make them happy now you make them happy 20 years hence, by the memory of it.—*Sydney Smith*

I do not think of truth as being made of granite, but rather as resembling a note of music, a note which we instantly recognize as the right one as soon as it is struck.—*Iris Origo*



Squamous Cell Carcinoma of the Maxillary Antrum

Edited by JOHN D. WARKENTIN, M.D.

Dr. Fink (Moderator): Today's case is one of a common tumor occurring in a rather uncommon and easily overlooked location. May we hear the patient's history, please?

Miss Gerbrandt (Senior Medical Student): The patient is a 54 year old chemist who entered the hospital on February 13, complaining of a dull pain which began in the right temporal region and radiated across his cheek. This pain had been present for six months, at first intermittently but later constantly except when relieved by aspirin. The pain had become progressively more severe until he finally sought hospitalization elsewhere about 2 months ago. There he was thoroughly examined but the cause for his facial pain was not determined. A week before his admission here, he consulted his dentist who took x-rays of his jaws and found an unerupted right upper third molar tooth. The patient insisted that this tooth be extracted. Following extraction the dentist noted a "cyst" and another fragment of tissue which he submitted to a pathologist. The pathologist's opinion was that this tissue was probably a squamous cell carcinoma. The patient was subsequently referred here for further investigation and treatment.

Past illnesses are limited to ulcer symptoms, consisting of epigastric pain relieved by food, which had been present for some 15 years. About 15 months ago the patient had an episode of hematemesis and melena, and received five units of whole blood. About 2 months before admission there was a second episode of melena, but this subsided spontaneously. A gastric ulcer was demonstrated radiographically during the previous hospitalization and the patient was started on medical treatment which he has apparently not followed too closely.

The review of symptoms was negative apart from complaints of anorexia, easy fatigability, and a 15 lb. weight loss over the past 6 months.

On physical examination, the vital signs were within normal limits. The eyes and ears were normal,

but the nose showed mucosal congestion with a mucoid discharge. Examination of the oral cavity disclosed an absence of the third upper and lower molar teeth bilaterally and a decrease in the size of the right maxillary tuberosity. Sensation in the face and mouth was normal and there was no evidence of motor weakness or paralysis. A single soft, movable lymph node, approximately 1.5 cm. in diameter, was palpable in the right supraclavicular fossa. The remainder of the physical examination was within normal limits.

Dr. Fink: May we see the x-rays please?

Dr. Hartman (Resident in Radiology): The x-rays of the sinuses disclose complete cloudiness of the right maxillary antrum compared with the sharp outline and good aeration of the left (*Figure 1*). This cloudiness is probably due to fluid, perhaps blood. It obstructs good visualization of the walls of the antrum, but there is a suggestion of destruction of its floor and erosion of its roof. This is diagnostic evidence of a malignant tumor which has eroded into the wall of the antrum.

The dental survey discloses absence of all of the molar teeth with the exception of the left upper third molar. There is considerable alveolar absorption.

The first upper gastro-intestinal series done on February 14 discloses a large penetrating ulcer, approximately 1.5 cm. in diameter, in the lesser curvature of the stomach. There is considerable deformity of the duodenal bulb. The second barium meal, given about 3 weeks later, shows considerable healing and the ulcer crater is now only a few millimeters in diameter. This indicates that it is benign and presumably unrelated to the antral disease.

Dr. Fink: Dr. Kaye, what has been done for the patient?

Dr. Kaye (Resident in Plastic Surgery): Whenever a patient is referred to our service with a tissue diagnosis made elsewhere, it is invariably our practice to obtain the slides on which the diagnosis was made

for review and confirmation by the staff pathologist here. This was particularly important in the present case, since the pathologist who examined the original specimen had been reluctant to make the diagnosis of squamous cell carcinoma. There was also some disagreement in interpretation among the local pathologists who saw this specimen, and the diagnosis finally rendered was apical granuloma of the upper third molar tooth.

However, after the x-rays of the sinuses had demonstrated the opacity and destruction of the right maxillary antrum, it was apparent that this diagnosis might be in error and that another biopsy was imperative. This was done by the Caldwell-Luc approach through the mouth. An opening into the right maxillary antrum was made and specimens of tissue were taken from all areas. The pathologic diagnosis this time was unequivocally squamous cell carcinoma.

A second, more definitive operation was then undertaken. A direct approach to the antrum was made through an incision which split the upper lip, then curved laterally along the naso-facial crease and beneath the eye. This gave excellent exposure of the antrum. The tumor could now be seen to involve much of the maxilla, including its floor, posterior wall, roof, and the alveolar ridge. It had broken through the wall to invade the region of the pterygoid muscles. As much of the tumor as was possible was removed. The bony walls of the antrum were all removed with the exception of the floor and the orbit, since removal of the latter would have necessitated orbital exenteration. We realized that the tumor had already extended too far to be removed completely and that further treatment would be required.

Post-operatively, the patient has done well. His incision has healed with the exception of a small draining sinus. In spite of the considerable amount of tissue that was removed, there is little resultant cosmetic deformity. Inside his mouth, however, there is a small hole which goes back into the antrum and into the pterygoid muscle region behind the tuberosity of the maxilla. As a result of this, there is slight regurgitation of fluid through the nose when the patient drinks. The quality of his voice, however, has not changed appreciably. Within the past few days he has had a recurrence of his headache in the right fronto-temporal region. He has been examined by a neurologist who believes that this pain is probably due to the extension of the antral carcinoma along the first and second divisions of the trigeminal nerve. Radiation treatment with the CO⁶⁰ unit has been started.

Dr. Fink: Dr. Mantz, will you describe the surgical specimens, please?

Dr. Mantz (Pathologist): First, I will point out one aspect of the development of the tooth which may provide the pathologist with difficulty in interpreting the presence of infiltrating masses of epithelium oc-

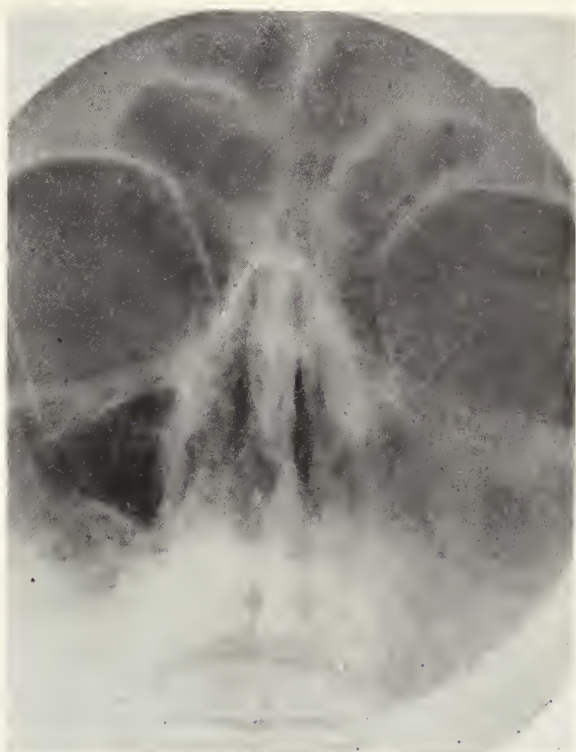


Figure 1. View of the maxillary sinuses shows marked opacity on the right. There is evidence of destruction of the floor of the right maxillary antrum.

curing within the gingiva or the deeper tissues of the alveolar ridge. At about the 6th week of gestation, the ectoderm overlying the developing jaw undergoes localized thickening of its basal layer. This proliferating ectoderm soon invaginates to form the enamel organ which then continues to grow inward as a bell-shaped structure with the mesenchymal dental papilla filling its inner cavity. The innermost layer of cells of the enamel organ differentiates into ameloblasts whose function is, firstly, to induce the differentiation of the adjacent mesenchymal cells into odontoblasts and, secondly, to lay down the enamel of the crown. This second function, of course, is carried on only by the ameloblasts in the tip of the cusp and not by those covering the root. After the ameloblasts of the root have fulfilled their function of induction, they separate from the root, but remain within the fibrous periodontal membrane as small islets of epithelial cells known as the epithelial rests of Malassez. These rests may be found within the membrane at any age after the roots have formed and are not infrequently seen by the pathologist. During dental infections or abscess formation around the tooth, this epithelial tissue is frequently stimulated to grow, and may give rise to an epithelial lining to the abscess, resulting in a radicular cyst. In other cases, small islets of proliferated squamoid epithelial cells may be scat-

tered throughout the chronic inflammatory tissue and give the appearance of an invasive neoplasm. The pathologist confronted with a piece of such tissue has a difficult choice to make. He sees evidence of inflammation and fibrosis with scattered islets of epithelial cells. Do these islets represent a proliferative reaction of the rests of Malassez, or are they neoplastic? This is the dilemma which we faced in interpreting the tissue which the dentist originally removed from this patient after extracting his tooth.

With this background, let us now examine the slides from the original biopsy. We see considerable inflammation, fibroblastic proliferation, and many foreign body giant cells, but in addition, there are many islands of epithelial cells which are not particularly squamoid, tend more to be reticular or fusiform, and closely resemble the rests of Malassez (*Figure 2*). It is understandable that there was some difference of opinion among reviewing pathologists. Those that felt the lesion was frankly carcinomatous had to yield on the basis of clinical evidence that was presented at that time, since extensive x-rays, not including the films you saw today, showed no evidence of destruction of bone and nothing to suggest disease within the sinus.

The gross specimens from both operations performed here consisted of irregular pieces of firm granular tan tissue, sometimes adherent to fragments of bone. The microscopic appearance of all of these fragments is similar. Instead of the usual covering of ciliated columnar respiratory epithelium, there is either ulceration or a covering of keratinized squamous epithelium. More significant, however, are the

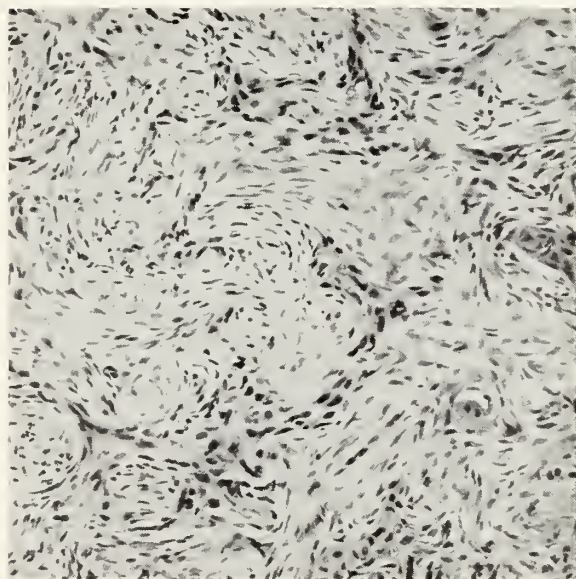


Figure 2. Photomicrograph of the original biopsy of the alveolus shows irregular nests of fusiform epithelial cells lying within proliferating fibrous tissue. Hematoxylin and eosin. $\times 160$.

numerous islands of epithelial cells within the underlying fibrous stroma. These neoplastic epithelial islands have invaded to great depth and extensively destroyed the bony wall of the antrum (*Figure 3*). In places the floor of the sinus is entirely gone and is replaced by the infiltrating tumor with its attendant fibroblastic reaction. The tumor also extends downward into the alveolus of the underlying jaw from which the impacted wisdom tooth was originally removed. In places there is reactive new bone formation. The majority of the tumor cells are not typically squamous but tend to be more columnar, although some do form whorls and small keratin pearls (*Figure 4*).

In the floor of the maxillary sinus there was a large polypoid mass which grossly might very well have been mistaken for an inflammatory polyp. Its surface is covered with the usual respiratory type epithelium but the substance of the polyp is composed of more of the same extensively infiltrating tumor.

The tumors arising from the mucosa of the nose and nasal sinuses are quite characteristic and differ from those of the posterior nasopharynx in their histogenesis and biological behavior. The boundary between the two areas is a vertical line drawn approximately through the posterior end of the middle and inferior turbinate bones. Epithelial tumors occurring posterior to this line tend to be anaplastic, and include the so-called lympho-epitheliomas. Those originating anterior to this boundary, such as the tumor presented today, arise from the so-called Schneiderian membrane and usually are well differentiated carcinomas of either squamous or mucoid variety. A third group of tumors originates from the mucous glands; these closely resemble those arising in the major salivary glands. The mucous membranes of the nasal sinuses have an amazing propensity for giving rise to squamous cell carcinoma. This is particularly true in the maxillary sinus and especially in the mucosa which covers its floor. Those tumors arising from the roof and lateral walls of the antrum tend more often to be polypoid mucus-secreting adenocarcinomas. The characteristic behavior of these so-called Schneiderian carcinomas, whether they be squamous or adenocarcinomas, is local infiltration and destruction rather than widespread metastasis. They metastasize very late if at all. The tumors arising in the floor of the antrum frequently invade downward into the alveolar sockets so that the dentist is often the first to see such a patient because of a loose tooth. Following extraction, he will note a small amount of abnormal tissue and if he submits this for histologic examination, the diagnosis may be made.

Dr. Fink: Dr. Robinson, may we have your comments?

Dr. Robinson (Surgeon): Dr. Mantz has mentioned the excellent opportunity that dentists fre-

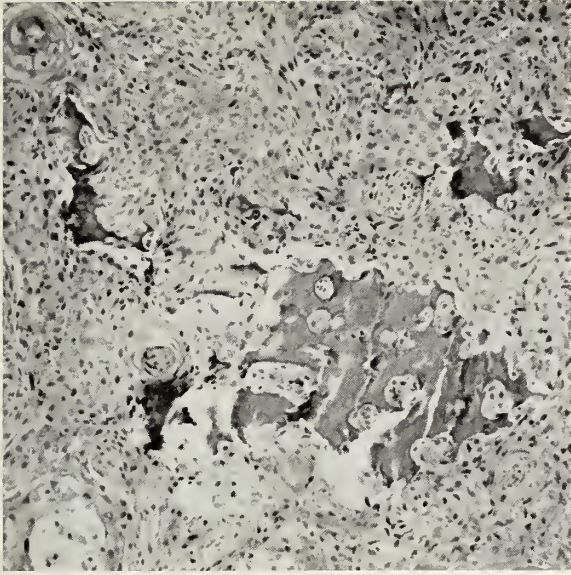


Figure 3. Photomicrograph of the wall of the antrum illustrates the extensive destruction of bone by tumor invasion. Hematoxylin and eosin. $\times 100$.

quently have for discovering tumors of the jaws and maxillary antrum. Unfortunately this opportunity is not always taken advantage of. It is difficult to ignore extrusion of tumor tissue from a socket after a tooth extraction but sometimes this happens. It is also of importance to pay close attention to the healing of the wound after tooth extraction. Whenever such a wound does not heal promptly, the dentist or physician should become strongly suspicious. Patients with non-healing holes after dental extraction are still too frequently being followed for 2 or 3 months before adequate investigation, thus delaying the diagnosis of a cancer. In today's example, the dentist who extracted the tooth is to be commended for his high degree of suspicion and prompt action.

A second lesson this case illustrates is the importance of taking an adequate biopsy and if necessary, repeating it again and again. When a pathologist is uncertain of the diagnosis or when disagreement exists among two or more pathologists, the responsibility for pursuing the problem remains with the clinician. If the clinician is strongly suspicious that a given lesion is malignant but receives a negative report from the pathologist, he should take another biopsy, and if necessary another, until he is satisfied about the tissue diagnosis. We, as clinicians, must remember that any biopsy will show the pathologist only the limited picture of the particular piece of tissue that was removed, which may not be representative of the entire lesion. If the biopsy is too small or is removed from the wrong place, the pathologist cannot give the correct interpretation of the tissue that has been left behind. Sometimes we also err in supplying the pathologist with insufficient clinical informa-

tion, so that again his interpretation is one-sided and must be based entirely on the histologic appearance.

Carcinomas arising in the superior alveolus may present around the teeth or they may grow up and erode into the antrum. Once they have eroded into the antrum, it may be impossible to say whether they originated in the antrum or in the alveolus. These tumors may not give rise to symptoms until considerable destruction of bone has taken place and so, may, of course, be inoperable when first discovered. The treatment of tumors of the antrum or alveolus is surgical removal whenever possible. However, once they have involved the bone, they may be extremely difficult to eradicate by operative means. In such cases, we follow the operation with radiotherapy. This approach is illustrated in today's case in which the tumor had extended up into the base of the skull, and there was no possibility for a complete surgical extirpation. I deplore the practice of simply making

(Continued on page 370)

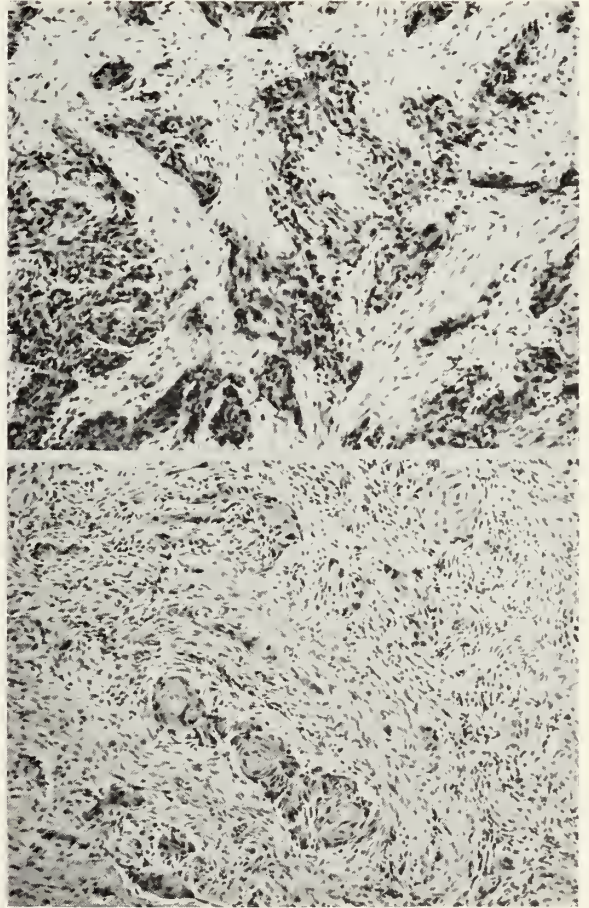
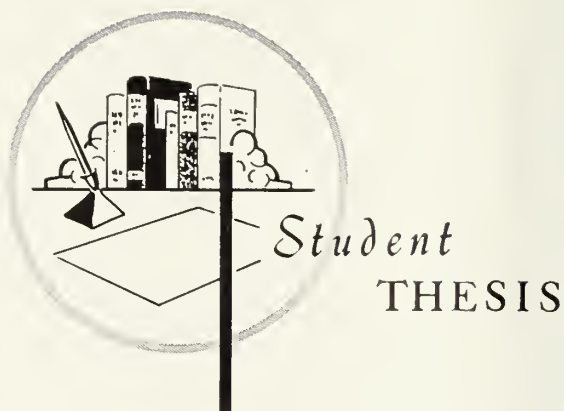


Figure 4. Photomicrograph of the tumor. Hematoxylin and eosin. $\times 100$. (Top) The tumor cells are disposed in patternless clusters. The majority are columnar or fusiform. (Bottom) Cellular whorls and small keratin pearls also occur.



Struma Ovarii: Its Concept

CHARLES R. BROMAN, M.D., Galveston, Texas

TO THE PRESENT there have been about 250 cases of struma ovarii (or objects so designated as struma ovarii by the authors) described in the literature. Those cases, up to 1946, have been exhaustively documented and analyzed by Smith. Since his article there have been at least 80 additional cases recorded for the most part situations in which an ovarian thyroid is associated with unusual circumstances or has resulted in unusual manifestations. Organization of these data is clearly indicated; however, to tabulate this would seem to me to be a most exacting and disagreeable task of organizing cold statistics. On the other hand, it would be interesting, albeit not essential, to probe into the background surrounding the development of the struma ovarii concept. To this aim this paper is directed.

The most recent publication giving the results of 69 years of speculation, observation and rumination concerning struma ovarii presents a clear current concept of this rare entity:

Thyroid tissue, which is a frequent constituent of teratoma, may overgrow all other elements, producing tumors made up entirely or in large part of thyroid tissue. This, at any rate, is the generally accepted explanation of such tumors, which, however, are rather rare.

While the histologic picture in the typical case

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Charles R. Broman is now serving internship at the University of Texas Medical Branch, Galveston, Texas.

leaves little doubt as to the thyroid nature of the tumor tissue, one may be misled by the pseudothyroid appearance at times seen as a result of degenerative changes in either adenocarcinoma or cystadenoma of the ovary. That genuine thyroid tissue is concerned, however, has been demonstrated by chemical determinations of the iodine content as well as by biologic tests with the tumor tissue. As a matter of fact, there is a small group of cases in which the thyroid tumor of the ovary was apparently functionally active, producing clinical evidences of hyperthyroidism. While such tumors have seemed relatively benign in most cases, in a number of reported instances they have run a definitely malignant course, with metastasis and death. The mere presence of a small amount of thyroid tissue would not justify the designation of ovarian struma. It must make up a dominating area of the tumor, although no hard and fast rules can be given. Furthermore, only a fraction of tumors of this group are associated clinically with hyperthyroidism, and in these there is evidence of the same sort of hyperplastic change which characterizes the overactive thyroid gland.

Arrival at this milestone has been via the work of many investigators. It has involved not only an understanding of the thyroid tumor but also of dermoids and teratomas, with which it is so intimately related. Wilms, as long ago as 1895, showed that the term dermoid, as usually applied to ovarian cysts, was a misnomer. It had arisen from an erroneous conception of their structure, then generally

considered to be a simple ectodermal formation. At that time, on the ground that all ovarian dermoids contain the three germinal layers, he advanced the dictum that there exist in the ovary no tumors composed only of skin. It was his opinion that the cystic type of dermoid should be termed embryoma and the solid type teratoblastoma. Somewhat later Pfannenstiel, who accepted Wilms' conclusions, made the additional point that ovarian dermoids or cystic tumors differ from ovarian teratomata or solid tumors chiefly because dermoids exhibit elements partially or completely recalling fetal or adult organs of the human body, and so are benign. Teratomas, on the other hand, exhibit elements of the three germ layers growing with unrestrained licence and exhibiting a cell structure atypical in form, size and arrangement, and so are malignant.

These early observations have stood the test of time so that today teratoma and dermoid cyst are considered together, the latter constituting only one variety, though by far the most frequent, of the former. The histogenesis of the two is identical, though they present certain important points of difference as to gross microscopic characteristics and clinical course. Authors differ somewhat as to the basis of distinction between the two but the following generalizations can be drawn:

1. The dermoid is a cystic tumor, the teratoma a solid one, though it may show occasional small cystic areas.

2. The dermoid is characterized by a predominance of ectodermal elements, though mesodermal elements and occasional endodermal structures are also found. The teratoma always shows a conglomeration of elements derived from all three germinal layers. It is fact, however, that no sharp dividing line can be drawn on this basis.

3. The dermoid cyst is a benign tumor, all the abnormal tissue elements being well differentiated. The teratoma is to be classed as a malignant one, the fetal elements being of undifferentiated type, and the clinical course being characterized by such malignant features as recurrence and metastasis with death. It is this third criterion which one author declares to be the most important.

Before continuing, a word in regard to nomenclature of these ovarian thyroid tumors is in order. Various terms have been applied to them by the different authors, some rivaling in length and complexity the names of organic chemical compounds. They were originally described as "*struma thyroidea aberrata ovarii*" but in quick succession several other names were suggested—"struma ovarii colloides," "teratoma strumosum thyroidiale ovarii," "Struma ovarii." Another writer offered as the perfect compromise "*teratoma thyroidiale ovarii*." Although it gives neither origin nor anatomy, however, the title which

has emerged as the most popular, hence acceptable, is "*struma ovarii*." It was first used by Meyer in 1903 and gained almost immediate acceptance by American authors even though their German colleagues were somewhat more reluctant. More than likely the term's quick acceptance was due more to its brevity than any other single factor.

It is commonly considered that the first of these growths to be described in the literature was recorded by Boettlin in 1889. He wrote of a small group of vesicles "showing almost complete histological agreement with the parenchyma of the thyroid" in an ordinary, typical ovarian dermoid (with skin, hairs, etc.). His short accompanying description is clear enough but Boettlin did not show with sections and stains that the "colloid vesicles" are simply not tubular mucous glands distended with their inspissated secretion.

The next mention of ovarian thyroid tissue was by Wilms in 1895 in his curious ovarian "embryo" with the endoderm on the "dorsal" surface of the "brain." He mentions a respiratory type canal partly surrounded by "a well developed thyroid undergoing colloid degeneration," and adds that "I can save myself a description of the latter, since the appearances are so typical that a mistake is excluded." Wilms again (1896) says of a solid teratoma with thyroid, that "between the cysts there lies a well developed organ, the resemblance of which to a thyroid cannot be mistaken. The partly formed vesicles are filled with colloid as in that gland." There is no evidence in either case apart from personal opinion that we are not concerned with "resemblance."

Merttens in 1897 in a paper dealing chiefly with dermoid teeth mentions "glandular vesicles in large numbers, resembling those of the thyroid." Unfortunately the accompanying figure is only a rough diagram with no histological details.

Kroemer (1899) enjoys the distinction of being the first to combine both description and drawing in such a manner that those who cannot see his specimen are satisfied. The object, a typical ovarian dermoid, contains a canal of respiratory type and, at one spot close by, a gland the size of a pea, that "reveals itself under the microscope as normal thyroid. . . . The gland, supplied with nerves and vessels, lies in a capsule of its own. The follicles present only slight differences in volume, are lined with low epithelium and filled throughout with tough colloid. Hardly anything of stroma is present." The excellent drawing amply confirms Kroemer's statements.

Next, Katsurada in 1901, said that two of his ovarian dermoids contained thyroid. In the first "one sees in the immediate vicinity of an island of cartilage a fairly well developed but irregularly

formed thyroid. The tubules of the gland are lined with a simple layer of cubical epithelial cells, and a few contain colloid substance." In the second dermoid "the presence of thyroid tissue, more correctly, of a high degree of struma colloides in the cyst-wall is of great interest. Formation of colloid and extent of vesicles are generally very extensive; several of the latter form larger cysts containing brownish or dark brown masses of colloid. In this thyroid one finds every here and there a small number of follicle-like aggregates." Had Karsurada augmented his sketchy descriptions with legible figures, he would presumably have established the second case as a genuine ovarian thyroid.

For reasons not quite clear the above seven cases are only rarely mentioned in the literature. There are, however, two additional cases which cannot be lightly passed over, for they are the foundation on which controversy was established. To the seven cases, therefore, must be added the first example of pure ovarian goiter described (1899) and accepted by almost all authorities. It was not, curiously enough, accepted by Gottschalk, the author himself. Gottschalk was convinced that his tumor was a "folliculoma malignum ovarii" as explained by him:

A firm brownish red tumor of the left ovary of a forty-eight year old para three; 10 x 8 x 3.5 centimeters, the periphery with large cysts, the center honeycombed with minute cysts, all with colloid contents. A capsule is present but ruptured in places. "At first sight the picture is reminiscent of struma maligna," i.e., solid 'syncytia' and closed 'syncytial' vesicles with daughter vesicles at their periphery. "There can be no doubt that we are dealing with a neoplasm of anatomical and clinical malignancy which has arisen from the wall of primordial follicles."

Evidently Gottschalk thought the tumor malignant for the sole apparent reason that ovarian follicles are confined to the cortex but the whole medulla was occupied by vesicles in the specimen. This stand was taken in spite of the fact that the woman was in continued good health a year after the operation. Gottschalk's beautiful illustrations show typical thyroid, somewhat immature and cellular in places, adult in others with plenty of colloid vesicles, a few abnormally large but without a solitary objective indication of malignancy. In all communications Gottschalk referred to his tumor as "similar to struma malignum." This is certainly not a phrase one would use to convey the idea that it contained thyroid tissue; the term struma malignum does not convey a correct idea of the pathologic anatomy presented by an ovarian tumor of this type.

The second aforementioned case, a similar specimen, was studied and described by Kretschmar two years later (1901). The first report of his case was

read before the Gynecological Congress at Giessen. At that time Kretschmar made no reference to thyroid tissue observed in his tumor and his statements show he did not suspect any. Kretschmar interpreted his case as an endothelioma, since he thought he could demonstrate the occurrence of the primary tumor elements always within preformed lymph spaces, a proliferation of whose lining endothelium he believed to be the causative factor. If, indeed, Kretschmar's tumor were to be classed as an endothelioma, it would be an endothelioma of adenomatous type. At a glance an adenomatous endothelioma looks like thyroid tissue but on careful examination of serial sections it is seen that every vesicle in the endothelioma has a canal in its center, which is not the case in thyroid tissue. In addition, every section of an endothelioma shows lymph tubules with open canals and nothing similar is seen in thyroid tissue.

When Kretschmar reported his case, no ovarian thyroid tumor had been recognized which contained other tissue such as hair, salivary gland or bone. He was led to believe, therefore, that the thyroid tissue in an ovary was a metastatic deposit from the normal or abnormal thyroid gland. He based his opinions upon the reports of Riedel and of Oderfeld and Steinhaus who found metastatic deposits in the jaw and frontal bone originating from apparently normal thyroid glands.

So much for the evidence available in 1902—one established nodule of thyroid in a dermoid (Kroemer) and two misinterpreted ovarian goiters without demonstrated admixture of other tissue (Gottschalk and Kretschmar). This would not appear to be sufficient evidence on which to build any sort of theory. However, in 1902, Ludwig Pick gained the distinction of being the first to clearly describe and properly classify these ovarian thyroid tumors or, as he termed them, "struma thyroidea ovarii aberrata." In another paper, he pointed out that Gottschalk's "folliculoma malignum ovarii" and Kretschmar's "endothelioma" were actually perfect examples of thyroid tumors of the ovary. Pick's description of the best specimen in his series, as transcribed by Dingels, runs thus:

"The tumor is a small-man's-fist-sized cyst" (an ordinary ovarian dermoid with skin, hair, teeth, etc.). "In immediate contact with a bay-like invagination" of the cyst wall "there is a largish body, 3 x 3 x 1 cm., of partly brownish, finely porous consistence, of partly more coarsely cystic structure; one finds a large number of miliary, lentil-to-pea-sized cysts with tough transparent, partly yellow, partly greenish, partly brown contents. . . . There is no doubt that we are dealing here with nothing else than a thyroid gland presenting the picture of so-called colloid struma. The microscopical picture teaches this conclusively;

and the positional relations of the body to the rest of the 'anlage' agree. The skin with hairs corresponds to the scalp, the shallow bay with the teeth at its borders to the oral cavity, and exactly corresponding with thyroid does the flat stratified epithelium of the oral bay change suddenly and quite abruptly to stratified ciliated epithelium, agreeing exactly with the normal neighborhood of the respiratory tract and thyroid."

A glance at Pick's two original illustrations showing undoubted thyroid vesicles and liquefying thyroid stroma will convince those who doubt his description.

Shortly thereafter, Pick, in an extended discussion with Gottschalk before the Berlin Medical Society, advanced the theory which is now accepted, that these thyroid-like tumors of the ovary whether or not they contain derivatives of other embryonic tissues, are in fact teratomata. The entodermal elements of the thyroid anlage have undergone excessive development, with a consequent partial or complete suppression of all other tissues. This startling new theory, as far as can be determined, was based on the following observations:

1. Pick states he "found these structures" (thyroid tissue in dermoids), "previously regarded as rarities, in six of his latest twenty-one examined cases, often only sparingly, but regularly presenting the picture of struma colloidales, partly with formation of large cysts."

2. Pick cites the celebrated case reported by Saxter, in which a single, well-formed tooth was found in an otherwise healthy ovary. This occurrence he believes to be explainable only on the theory that a teratoma had started to develop but that all other tissues than those of the tooth had for some reason undergone atrophy and eventual disappearance.

3. Pick also observed that often, along with the thyroid tissue, there was also found in these ovaries a variety of other structures such as bone, teeth, hair, cartilage, and nervous tissue. Calcium, cartilage and even bone may appear in degenerating thyroid tissue. But degenerative changes cannot account for the presence of the hair, teeth, etc. in these tumors. The variability in association of these structures suggested an embryonic displacement into the ovary of multipotent cells which might proliferate in the direction of any type of tissue.

4. Pick drew attention to the fact that metastases from the thyroid gland almost always are located in the bony skeleton. To suppose that thyroid metastases are found solely in ovaries requires undue stretch of the imagination.

In a later writer's opinion, however, the strongest argument is to be found in the fact that a considerable number of tumors have been reported showing various intermediate stages between the two end types—a

large cystic teratoma with an almost insignificant area of thyroid tissue on the one hand and a good sized tumor consisting purely of this on the other. These types may be considered as forming the extremities of an unbroken series, throughout which the thyroid tissue shows varying degrees of development, having in a few instances completely suppressed all other elements. Of especial interest and significance in this connection are the painstaking investigations of Walthard, who undertook the extensive labor of making complete serial sections of three such ovarian tumors.

After the appearance of Pick's article, Gottschalk wrote another paper on the subject, contradicting himself a number of times. In his later communication he refuted Pick's diagnosis and declared his original one "*folliculum malignum ovarii*" correct. He further stated that his tumor developed from the wall of a primitive follicle and showed a strong similarity to so-called folliculum. Because he found the smallest locules in the periphery of his tumor, Gottschalk concluded it developed from the periphery of the ovary, disregarding the fact that the same formation is observed in all cystic tumors.

Kretschmar, who had originally diagnosed his tumor as an endothelioma, was struck by its similarity to thyroid tissue upon reexamining it after the appearance of Pick's paper but was unable to bring himself to the atypically-developed teratoma theory. Although giving up the endothelioma diagnosis and admitting the identity of the tumor tissue with that of the thyroid, he continued to explain the presence of this tissue in the ovaries on the ground of a metastasis from the thyroid gland. The chief stumbling block in the way of this interpretation was the fact that some small areas of bone were present, a circumstance that, as Kretschmar admitted, strongly strengthened the teratomatous theory of origin. He believed, however, that they may have merely represented the end-result of metaplastic changes in the connective tissue, the same thing being found in the so-called ossifying strumas of the thyroid gland itself.

Another author who was unable to accept the teratoma theory, or indeed to believe that the thyroid-like tissue occurring in ovarian tumors had anything to do with the thyroid whatever, was Bell. He described two large, multilocular cysts, each containing a small area of tissue which he admitted showed practically histologic identity with that of the thyroid. He believed, however, that this was in reality merely the result of a peculiar colloid degeneration of an ordinary cystadenoma of the ovary, the epithelial lining of the acini having been flattened out by pressure. He stated that he had seen a very similar histologic picture produced in a kidney by complete obliteration of the ureter.

With these exceptions the majority of authors who

discussed these questions have more or less accepted Pick's theory. Subsequent to these earlier efforts, the identity of the thyroid tissue has since been indisputably proven—morphologically, pharmacologically, chemically and biologically—by Plaut in 1933. Although it is difficult to establish definite criteria as to the characteristics necessary to classify a teratoma among the strumas of the ovary, it seems necessary in order to exclude tiny nodules of thyroid in dermoids from this rather specific group. Accordingly, one group feels that a tumor should fulfill at least one of the following criteria to justify its position:

1. Thyroid tissue composing at least fifty per cent of the solid mass of the ovarian tumor.

2. Evidence of physiologic overactivity of struma ovarii in the form of clinical hyperthyroidism with subsequent regression after removal of the ovarian tumor.

3. Major pathologic changes in the ovarian thyroid, other than that seen with overproduction of the hormone.

This is the concept of struma ovarii which is held to be true in this, the middle of the twentieth century.

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 West 4th Street, Topeka, Kansas.

New Drug Firm

The recent June American Medical Association Meeting in New York served as a launching pad for a new drug manufacturing enterprise—Philips Roxane, Inc.

Philips Roxane rises out of a vast network of technological operations here and abroad from which its extensive plans for pharmaceutical research and development have been drawn. In the background are a number of corporate operations. Among these are the Philips Electronics and Pharmaceutical Industries Corp. and N. V. Philips-Duphar of The Netherlands.

To enhance and facilitate its research and marketing operations in this country, Philips Roxane has acquired several American affiliates. Among these is the Columbus Pharmacal Company of Columbus, Ohio, which henceforth will operate under the new Philips Roxane name.

Another affiliate has been acquired at the location of the headquarters for Philips Roxane in St. Joseph, Missouri—the Anchor Serum Company of that city.

The product scope of Philips Roxane was further extended with the acquisition of Thompson-Hayward Chemical Company, of Kansas City, Missouri.

The unusual institutional character of the initial promotional step taken by Philips Roxane at the American Medical Association Meeting was in keep-

ing with its non-commercial approach in introducing itself to the medical profession.

Tumor Conference

(Continued from page 365)

a hole in the wall of the antrum and putting in radium. This is not enough. Surgical extirpation followed by radiation is much more effective.

The prognosis depends on the degree of direct extension. If the tumor is still localized, there is a reasonably good chance of salvage of about 30 to 40 per cent of cases, but once it has spread widely through the antrum, particularly posteriorly into the pterygoid region, the survival rate is very low.

Dr. Fink: Dr. Tice, do you have any comments about the radiotherapy of these tumors?

Dr. Tice (Radiologist): In 1949, I reviewed the cases of cancer of the antrum that had been treated at the Kansas University Medical Center.¹ My main interest was in those that had been treated with radiotherapy supplementing some form of surgical treatment. There were 57 such cases, of which 47 were considered primary in the antrum. This series included all malignant tumors, carcinomas and sarcomas, of which 21 were primary squamous cell carcinomas. Our treatment of these cases consisted of intra-cavitary radium insertion sometimes followed by external radiation in varying doses. We achieved a 27 per cent five year survival in the group with primary tumors. This is lower than the majority of reports on this group of tumors. Cases that come to the radiologist for treatment, however, are usually already far advanced, as illustrated by these patients; 80 per cent already showed evidence of bone destruction. We had no early case in our series.

As I have observed these tumors handled over the years, I have become convinced that our best results are obtained by a conservative surgical procedure to open into the antrum followed by radiation therapy. As much tumor as possible is cleaned out of the antrum through this opening, and a pathologic diagnosis is obtained. This is not a radical procedure. The radiologist should now take over. A radium source, either needles or a capsule, is implanted in the antrum for a predetermined dose. Following this, external radiation should be given. In our institution, this was previously accomplished with 250 KVP (Ortho voltage) therapy. We now use CO⁶⁰. We try to get a total intra-cavity and external dose of 10,000 gamma roentgens or more. We have been gratified by the large dose that can be applied with little or no necrosis.

Reference

1. Tice, G. M. and Beller, W. L.: Malignant tumors of the accessory nasal sinuses. J. Kans. Med. Soc., 50:537, 1949.

The President's Message

DEAR DOCTOR:

One has only to look over the program of matters discussed at the recent American Medical Association meeting in New York by its House of Delegates to realize how very important all of this is to the practice of medicine in the United States by both ethical and unethical physicians; the latter are subject to discipline which it is hoped will change their methods. Many of us have had experience and know how easy it is to assume a critical attitude toward one's competitor, but usually it seems very difficult for doctors to take definite punitive steps against the rare and occasional M.D. who is really guilty of drastic violation of medical ethics such as grossly over-charging, charging one fee when the patient has no insurance and a much higher fee to the one who has insurance. There are also the few doing unnecessary surgery, as well as fee splitters and rebaters. We have the machinery to deal with these and other faults in a very few M.D.'s in the Grievance Committee of our county Medical Societies. It seems difficult to get doctors to use it. Not many physicians are guilty, but let's see that those who are receive punishment.

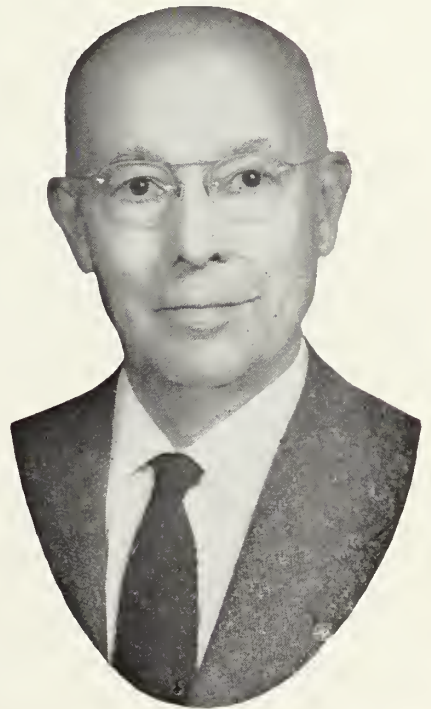
Many states have been plagued by the osteopathic controversy. Thank goodness, ours is apparently being ironed out satisfactorily in Kansas, and California has taken a tremendous step forward in the troubled condition there. It looks very much to me as though the whole problem has been pretty well solved in the past two years by action at all three levels of our Medical Societies.

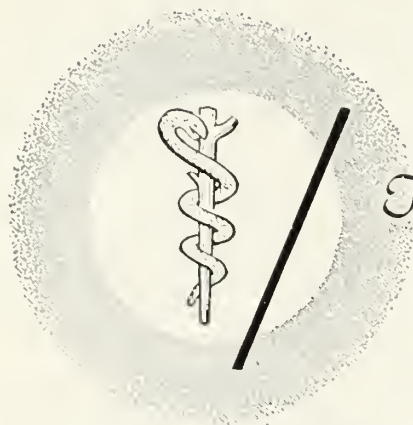
Let's all boost for organized medicine and help make it work.

Fraternally yours,

A handwritten signature in dark ink, reading "Harold M. Glover, M.D." in a cursive script.

President





The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

(This clipping is not from Kansas but is of such particular interest, especially to the young men and women studying medicine that the Editorial Board requested and received permission from the *Omaha World-Herald* for its use here.)

DOCTORS AND "SOCIETY"

"The practice of medicine is a public trust," Secretary of Health, Education and Welfare Abraham Ribicoff told the graduating class of the University of California Medical Center this week.

Has any young man or woman on the threshold of a medical career thought otherwise?

"Each of you in your two decades of training thus far has been heavily endowed by the people of your community, your state and country," Mr. Ribicoff continued.

Has any fledgling physician ever disputed that fact?

"Nor will the public interest in you end when your education is completed . . ." the Secretary said. "Public laws will govern your practice. The hospital in which you work will be licensed by the public, and may well have been built or equipped with public funds."

Those statements are elemental, as every graduating doctor in the land knows full well. But then Mr. Ribicoff turned to the realm of forecast. He said:

"In a few years you will come into your own as full-fledged practicing physicians. The new world that is yours to serve will be very different from the world as it was when you began your long preparations. . . . The very texture of our society will be different."

What did the Secretary of Health, Education and Welfare mean by that? Did he mean that doctors of the future will have to adjust themselves to the Big

Brother "texture of society"? Did he mean that because the public has taken a deep interest in the education of its doctors and has supplied some funds to build hospitals, medical graduates should feel obligated to consider themselves servants of the state, and beholden to some socialistic bureaucracy in Washington?

If that's what Mr. Ribicoff meant, we hope, with a considerable degree of confidence, that every young man and woman, now and in the future, who has the savvy to earn a degree in medicine will also have the courage to say to him nay.—*Omaha World-Herald*, June 7, 1961.

HORSE-AND-BUGGY SYSTEM

The present squabble involving the county coroner's office is simply further evidence that the coroner system is inadequate for 20th Century requirements.

The coroner is both a medical and a legal officer. He logically should be qualified in both medicine and law. But no such qualifications exist in the Kansas coroner system. Any citizen is eligible to run for the job, whether he knows anything about it or not.

Another defect of the system is that the coroner's office is not coordinated with other county offices. As a result, conflicts like the present one often crop up, and their effect is to hinder the detection and prosecution of crime.

The solution to the problem has long been before us. The medical examiner system, under which autopsies and inquests would be performed by professionally qualified persons, would be free of the obvious defects which now exist.

To replace coroners with medical examiners would

(Continued on page 376)

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011, ex. 297

Monographs available in the library.

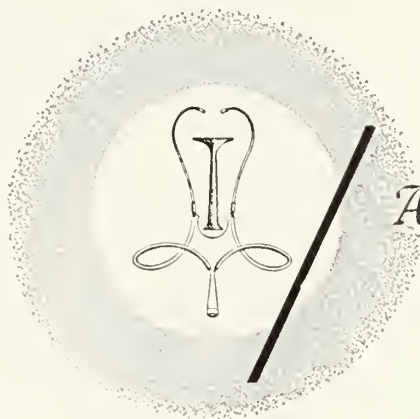
Marriage Manuals

- Adams, C. Preparing for marriage. Dutton. 1951.
Bowman, H. A. Marriage for moderns. McGraw-Hill.
Brink, F. W. This man and this woman. New York Assn. Press. 1948.
Child Study Assn. of America. Facts of life for children. Maco Mag. Corp. 1954.
Corner, G. W. Attaining manhood. Harper & Bros. 1938.
Corner, G. W. Attaining womanhood. Harper & Bros. 1939.
DeSchweinitz, K. Growing up. Macmillan. 1953.
Duvall, E. R. When you marry. Association Press. 1946.
Fishbein, Morris. Modern marriage and family living. Oxford Univ. Press. 1957.
Groves, E. R. Marriage. H. Holt & Co. 1941.
Gruenberg, Sidonis. Wonderful story of how you were born. Hanover House. 1953.
Levine, Milton I. A baby is born. Simon & Schuster. 1949.
Mead, M. Male and female. Morrow. 1949.
Popenoe, P. B. Marriage is what you make it. Macmillan. 1950.
Shultz, Gladys. It's time you knew. Lippincott. 1955.
Shultz, Gladys. Letters to Jane. Lippincott. 1960.
Strain, F. Being born. Appleton-Century-Crofts. 1954.
Himes, N. E. Your marriage. Rinehart. 1955.
van de Velde, T. H. Ideal marriage. Random House. 1930.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

Physiology

- Arey, L. B. Developmental anatomy. Saunders. 1954.
Ciba Foundation. Mammalian germ cells. Little, Brown. 1953.
Duchenne, G. B. Physiology of motion. Saunders. 1959.
Kappovich, P. V. Physiology of muscular activity. Saunders. 1959.
Kranz, L. G. Kinesiology manual. Mosby. 1956.
Rasch, P. J. Kinesiology and applied anatomy. Lea & Febiger. 1959.
Bronisch, F. W. Clinically important reflexes. Grune & Stratton. 1952.
Ciba Foundation. Symposium on the cerebrospinal fluid. Little, Brown. 1958.
Ciba Foundation Study Group No. 1. Pain & Itch; nervous mechanisms. Little, Brown. 1959.
International Neurochemical symposium. Metabolism of the nervous system. Permagon Press. 1957.
McIlwain, H. Biochemistry and the central nervous system. Little, Brown. 1959.
Moruzzi, G. Problems in cerebellar physiology. Thomas. 1950.
Schmidt, C. F. Cerebral circulation in health and disease. Thomas. 1950.
Adams, M. H. Bacteriophages. Interscience Pub. 1959.
Burrows, W. Textbook of microbiology. Saunders. 1959.
Gale, E. F. Synthesis and organization in the bacterial cell. Wiley. 1959.
Abraham, E. P. Biochemistry of some peptide and steroid antibiotics. 1957.
Barker, H. Bacterial fermentation. Wiley. 1956.
Pfizer, C. & Co. Our smallest servants; the story of fermentation. 1955.
Prescott, S. C. Industrial microbiology. McGraw-Hill. 1959.
Boyd, W. C. Genetics and races of man. Little, Brown. 1950.
Hovanitz, W. Textbook of genetics. Elsevier. Press. 1953.
Hughes, A. A history of cytology. Abelard-Schuman. 1959.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

A personnel exchange agreement in medical education between the School of Medicine of the University of Kansas and the College of Medicine of the University of the Philippines will begin this fall. Dr. C. Arden Miller, dean of the school, announced that funds to support the program for its first year (September, 1961 through December, 1962) have been granted by the China Medical Board of New York, Inc.

The exchange will involve undergraduate medical students, graduate students in the basic science departments, resident physicians in clinical training and faculty members at all levels. During the first year, two students from each classification and two faculty members will be exchanged to each University. Periods of exchange will range from three months to a year for students. At the faculty level, it is anticipated that the period of exchange would not be less than nine months for junior staff members and no shorter than two months for senior members. Visiting faculty members in either institution will serve actively in all programs of the departments to which they are attached.

The Thirteenth Postgraduate Assembly in Endocrinology and Metabolism, under the Co-Sponsorship of The Endocrine Society and the National Institutes of Health, will be held in Bethesda, Maryland, on October 2-6, 1961. A comprehensive review of clinical endocrine problems and current research activity in these areas will be presented. For further information, write to: Dr. Roy Hertz, National Institutes of Health, Building 10, Bethesda 14, Maryland. The fee will be \$100.00 for physicians, with a reduction to \$30.00 for Residents and Fellows. Enrollment limited to 100.

The Department of Otolaryngology, University of Illinois College of Medicine, will conduct a postgraduate course in Laryngology and Bronchoesophagology from October 23 through November 4, 1961, under the direction of Paul H. Holinger, M.D.

Registration will be limited to fifteen physicians who will receive instruction by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures.

Interested registrants will please write directly to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

A postgraduate course in Pediatrics, Clinical and Research Advances in Pediatrics and Child Guidance, will be presented by The University of Colorado School of Medicine in Estes Park, Colorado, at The Stanley Hotel on August 21-25, 1961. Further information may be obtained from the University of Colorado Medical Center, Office of Postgraduate Medical Education, 4200 East Ninth Avenue, Denver 20, Colorado.

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**YOUR LIBRARIAN WILL BE
HAPPY TO ASSIST YOU**



Blue Shield

Two-Way Communication With Members

Kansas Blue Shield Participating Physicians often have questions about the relationship of members with the Plans. These are fair questions and are increasingly significant in view of today's criticism of prepaid health care programs. They ask:

- What is Blue Cross-Blue Shield doing to let members know about their benefits?
- Is there a way to better inform them of policy changes?
- How effectively are problems of prepaid health care being explained to members?

The Blue Cross-Blue Shield Education Division in its role of communicating with members, has the responsibility in a large part for answering these questions.

Publications, ranging from inserts in billing notices, and *Health Plan*, the Blue Cross-Blue Shield quarterly publication, to expanded newspaper and television advertising, give members the details of benefit changes, current trends in health care economics, and suggestions concerning the upgrading of coverage.

However, perhaps the one most significant educational activity sponsored by Blue Cross-Blue Shield in Kansas is the program of "grass roots" meetings, conducted by Blue Cross-Blue Shield's Member Relations Department, which is a part of the Education Division.

Nearly 90 meetings are conducted with members each year. The purposes of this program are two fold:

I. First, these meetings are a direct means of informing members about benefits in an effort to help them better understand the problems of financing health care and the local responsibility in solving them.

II. A second goal of the meetings is to provide members with a channel of expression. The reactions they have concerning benefits and their suggestions regarding future needs furnish Blue Cross-Blue Shield with a direct report on the members' thinking at the "grass roots" level.

These meetings function at three levels—local, district and state. At the local level, approximately 70 Group Leader meetings are held throughout the state each year. Presently, over 2,000 group representatives participate in this program each year.

District Member Council meetings are conducted each spring in nine areas, which include every Kansas county other than Johnson and Wyandotte. These are designed for Farm Bureau and non-group members. The present invitation list includes more than 1,000 persons who have a special interest in Blue Cross-Blue Shield and have indicated that they want to participate in the Member Council Program.

What Do Members Say?

What *do* members think? What are people saying and what do they want done? What is Blue Cross-Blue Shield doing in its educational program to answer the main questions members raise?

The following discussion of subjects commonly brought out in the meetings would probably be of interest to physicians:

COST

Many members feel that Blue Cross-Blue Shield costs too much. Why do rates continue to rise and why can't costs be stabilized—are two commonly encountered questions.

BLUE CROSS-BLUE SHIELD'S ANSWER

Blue Cross-Blue Shield points out what hospital-medical costs *really* involve—what can be expected

if a member goes to the hospital, what factors are involved to increase the expense of adequate health care. The importance of a health program which increases benefits as costs increase is stressed, while the dangers in a program carrying fixed rates *but* also maintaining fixed benefits is pointed out. The fact that the cost of hospital-medical care is not too high in relation to amounts spent for other consumer items is illustrated.

MISUSE

Quite often members have the impression that hospitals and physicians take advantage of Blue Cross-Blue Shield.

BLUE CROSS-BLUE SHIELD'S ANSWER

Clearing up such misconceptions involves the careful explanation of the activities followed by physicians, hospitals, and Blue Cross-Blue Shield in the careful spending of the benefit dollar.

Members are reassured that charges by hospitals and physicians to Blue Cross-Blue Shield members are the same as to non-members. Information about the continuous hospital auditing program is conveyed. Members are told about fee surveys and of the continuing collection of data regarding health care costs carried on by the Plans. The work of Utilization Study Committees is described.

BENEFITS THAT INTEREST MEMBERS

- A substantial number of members are very interested in the Diagnostic X-ray Rider. At the present time, this coverage is available only to the members of Employee Groups.
- Members want more optional benefits. They like the idea of wide ranges in choices to fit a variety of need. Here again, the various optional benefits are available only for Employee Group selection.
- Members hope for better benefits for people over 65. They especially are concerned with more comprehensive ranges of coverage for those now 65 and over who have been members for many years with little or no utilization. This is an area to which Blue Cross-Blue Shield has given a great deal of study, but at the present time coverage is still limited for people 60 years of age and over.

In meetings, Blue Cross-Blue Shield encourages suggestions and ideas from members on the subject of getting the highest coverage possible at a cost that is acceptable. Members are urged to upgrade benefits, and the need for selecting more comprehensive coverage is made clear.

BENEFITS THAT DO NOT INTEREST MEMBERS

- Most members are *not* interested in increasing deductibles in Blue Cross.
- A high percentage of members would resist any forced increase in benefits. They are convinced that holding the line on costs dominates member attitude toward health prepayment, especially among younger people with families. They prefer varied optional offerings.
- Blue Shield Schedule 2 is still not attractive to many members. However, they *do* have interest in programs that provide predictability of coverage. They feel less opposition to an increased cost which would result in such a plan. In this area, a new Service Benefit program (designated as Schedule 3) has been introduced in three counties—Butler, McPherson, and Montgomery—and has been very well accepted. Other counties have plans for introducing this new Service Benefit program in the fall.

These are some of the most significant excerpts from member thinking in recent Member Council meetings. The approaches to correcting member misconceptions, as outlined above, are commonly employed by Plan representatives during discussions on these points.

Blue Cross-Blue Shield's educational efforts are aimed at goals of better understanding, benefit upgrading and membership retention. The "grass root" contacts embodied in educational meetings with members furnish a foundation for the broader approaches employed in publications and other mass media of communication.

Kansas Press Looks at Medicine

(Continued from page 372)

probably require a state constitutional amendment, a rather laborious process. Apparently public and official interest in the problem is too slight to accomplish this much-needed improvement in local government.—*Wichita Evening Eagle and Beacon*, June 23, 1961.

Love the soil. The work is hard and sometimes the return is little . . . but you will find in the good earth and fields a sure refuge from dangerous materialism.

Pope John XXIII

By doing . . . convincing things conviction is carried and results achieved that can never be accomplished by explaining them.—*Edward Steichen*

Spiritual life and secure life do not go together. To save oneself one must struggle and take risks.

—*Ignazio Silone*



Editorial COMMENT

The AMA has been accused of being "against"—Actually—that organization and all of its members are as anxious for the aged and all people to have the best medical care possible, as are the politicians who are looking only for votes and tax money from you and me. We are against auto accidents and burns from firecrackers as well as many other things including government control and government compulsion. Politicians and some news agencies accuse us of being against the 4th of July because we oppose fireworks. This is the typical approach of some politicians to get votes.

For more than twenty years the question of adopting some kind of National program for the medical care of the American people has been before Congress. The Wagner-Murray-Dingle bills, presented first in 1943, had they passed, would have established compulsory health insurance for all the citizens of this country. All members of the medical profession along with dentists, lawyers, insurance companies, and many others, fought this legislation and it was not passed.

In 1960, with the support of the medical profession, Congress passed the Kerr-Mills bill which is now the law of the land. This was in recognition on the part of the AMA that a small segment, and I use the word advisably, of the sixteen and one-half million people in the United States who are 65 years of age or over need health care. The proponents of Forand type legislation, now known as King-Anderson, intimate that all sixteen and one-half million are sick, all too poor to pay for health care and intimate also that they live in hovels unfit for human habitation.

These following statistics have been established by a group of sixteen professors from fifteen different colleges under Professors J. W. Wiggins and H. Schoeck, of Wayne University. This is the most honest means test ever done and reveals salient facts.

Kerr-Mills Versus King-Anderson

1. The average annual income of the aged is between two and three thousand dollars.

2. Cash equivalent assets over liabilities are in excess of \$10,000.

3. 33.6 per cent are still working.

4. 25 per cent live with their children.

5. 64 per cent have some kind of voluntary health and hospital insurance.

6. 96 per cent owed no money to hospitals, drug stores, dentists or doctors.

Does it appear from this that all 16½ million need to be put under a blanket of limited care? I am convinced that if 16½ million Americans 65 years of age or over were carefully informed concerning the King-Anderson legislation and its cost to their children in taxes, the majority would vote against it if the opportunity were given them to do so. Much is said and will be said by the proponents of Social Security medical care about the increased cost of the care of the sick and injured. These costs have increased, but so have all costs. Let us show what the U. S. Department of Commerce has said concerning cost increases in 20 years up to 1959 which are the only figures available.

At the close of 1959, the U. S. Department of Commerce Office of Business Economics produced figures showing percentage increase of various elements of life in these United States as well as where today's dollar goes.

The U. S. Office of Business Economics, admitting that all costs are higher today than ever, offer an interesting comparison of the advances in prices over a twenty-year period. The American dollar is spent in the following ratios according to their survey:

Twenty-seven per cent for housing, 22 per cent for food, 12 per cent for travel, 6 per cent for recreation, 10 per cent for clothing, 6 per cent for health, 5 per cent for tobacco and liquor, 12 per cent for all other items.

Now the comparative percentage advance in costs is even more revealing. Over the twenty-year period, cost of domestic servants has advanced 297 per cent, food costs up 151 per cent, shoes 169 per cent, clothing up 106 per cent, physicians fees only 90 per cent higher than twenty years ago. Health bills are higher but not as much higher as most other things purchased with our presently inflated dollar.

Twenty years ago the physician received 30 per cent of the health dollar; today it is 25 per cent. The drugs took 22 per cent twenty years ago; now 20 per cent. Hospital costs as well as health insurance are both higher today.

These comparisons show that Americans are paying less for health today than they did twenty years ago and are receiving the highest quality medical service available anywhere in the world.

Kerr-Mills bill is now the law of the land. It was proposed by Democratic Senator Robert Kerr and Representative Wilbur Mills of Arkansas, also a Democrat. It was supported by the AMA and its members.

I repeat: There is no organization or group of people more concerned about the health of all people than the American Medical Association and its members. The greatest amount of its resources, in money as well as its multiple committees and councils, is devoted entirely toward improving the care of the sick and injured and the education of doctors of medicine for that purpose and for research. The health record of these United States is ample testimony for the efficiency of this system.

What would the Kerr-Mills bill accomplish in the care of those elderly people?

It would enable the individual states to guarantee to every aged American—*who needs help*—the health care he requires—the two million Americans now covered by old age assistance and all other older persons who could not meet the cost of serious or protracted illness.

It should be noted that the Kerr-Mills law has two parts. *Part I* has to do with persons on Old Age Assistance and is referred to as "OAA." *Part II* provides for health care for persons over 65 who are *not* on relief but who need help with their medical expenses, and is referred to as Medical Assistance to the Aged ("MAA").

The Federal Government would grant funds to the states on the basis of per capita income and the services each state elected to provide. The states and local communities would decide eligibility and amount needed. This law specifies "Inpatient hospital or clinic services, home health care services, private duty nursing services, physical therapy and related services, dental services, laboratory and x-ray services, prescribed drugs, eye glasses, dentures, pros-

thetic devices, diagnostic screening and preventive services and any other remedial care recognized under state law.

How would all of this work in Kansas?

Old age assistance, this year's budget:

| | |
|------------------|----------------|
| State pays | \$1,422,600.00 |
| County | 2,436,887.00 |
| | <hr/> |
| | 3,859,000.00+ |

There are four other categories receiving aid but in the aged group the federal government adds approximately an equal amount.

Under the Kerr-Mills law, the federal government would pay 57.52 per cent while the state will pay 42.48 per cent. The program would be administered through the State Board of Social Welfare and the County Welfare Department. These agencies are politically appointed or elected in our own state or county. Thus, the administration is already set up and is close enough to be under the critical eye of the vendors of material and services and also the individual tax payers.

To implement the program in Kansas, our legislature would need to appropriate a definite sum based on the needs of 128,000 aged. Of these, about 28,000 are on relief (OAA) and come under Part I; the remainder (100,000) belong under Part II (MAA). No more than one-fourth, or 32,000, could possibly need medical care during a year. It has been estimated that Kansas would need to appropriate six million new tax dollars and that the total cost would not exceed 14 million dollars. This to be administered by the state and local communities. Our state and county expenditure on welfare, exclusive of federal participation, this year will be \$6,316,291.10.

Let us now examine the King-Anderson legislation as it is now in committees of Congress. It is designed to raise social security tax to $3\frac{3}{4}$ per cent of wages on a base of \$5,000 in 1962 and other annual raises up to $4\frac{3}{4}$ per cent by 1968. Remember this is really only half of the tax since the employer shares equally. You are not so naive as not to know who actually will pay this bill—the consumer of goods and services, of course. Politicians—being what they are—give no assurance against further raises. Is there any tax base remaining unchanged? The answer is *NO!* and changes always upward.

The sole administrator of this huge sum of money is the Secretary of Health, Education, and Welfare, who is appointed by the President—there should be no need to go further to connect this program to Federal politics, regardless of the party in power. In addition, however, there is to be a council of 14, also appointed, to help implement the program, and

these individuals are to receive \$100.00 per day plus expenses when they work.

It is our firm opinion that politics and medicine do not mix. King-Anderson legislation gives free choice of physician on the part of the patient—provided—that physician has signed a contract with the Federal Bureau. The benefits thus far allowed are more limited than Kerr-Mills legislation. Here are a few other objections which we believe are pertinent.

1. The cost would be astronomical. Much of this would go for administration of the program under Social Security.

2. It is *unnecessary* because last September 13 the Kerr-Mills bill was passed and should be given an opportunity to prove its worth.

3. In our opinion it would mean poorer, not better, health care for the aged. Psychosomaticism would increase tremendously. Imaginary pains can become real to some people who know that a soft bed, daily bath and meals served in bed lie at the other end of a protracted illness.

4. It would lead to the decline, perhaps the end, of private, voluntary health insurance.

5. In our opinion, that which would start out as health care of the aged would mushroom into socialized medicine for the entire population thus ending another segment of free enterprise.

6. Even though it would spread the cost of illness among all wage earners, it is taxation without representation.

7. It would be another political football changing with administrations and congresses and always with more and more controls.

Lenin said that the Key Stone of the Arc of Compulsion is in the care of the sick. King-Anderson legislation is a foot in the door of socialism. It is not Social Security which pays people money with which to purchase what they want and need when they retire. It is a promise of a limited amount of service to an increasing number of people at a cost dictated by a Federal Bureau.

The doctors of America believe that every person in need of medical service should get it whether he or she can afford it or not. We also believe in helping only those who need help.

President Kennedy said in his inaugural address, "We must not ask, What can my country do for me, but rather, What can I do for my country?"

Finally, when a maximum of freedom has been achieved, as it has in America, it is threatened by ideologies that are intrinsically destructive of freedom, then the liberal is a conservative dedicated to maintain and defend the cause of liberty.

L. S. NELSON, SR., M.D.
Salina, Kansas
Chairman, Committee on
Public Relations

State Hospitals

(The Division of Institutional Management of the State Board of Social Welfare prepared a statement of the functions and admission procedures of the eleven state institutions under its direction. This information will be published serially during the next several months.—Ed.)

The *Kansas Treatment Center for Children* is the children's section of Topeka State Hospital, providing psychiatric treatment for emotionally, mentally and socially disturbed children under 16 years of age. Currently, thirty beds are available for children between the ages of 6 and 12, and approximately sixty beds for children between the ages of 12 and 16. Outpatient services are also provided, but capacity is limited by available staff time.

The statutory charge for care and maintenance of a child at the Kansas Treatment Center for Children is \$28.00 per week, payable by the parent or guardian of such child. No child shall be denied the services of the institution, however, solely because of the inability of his parent or guardian to pay.

Admission forms may be obtained from county directors of social welfare, or from the Division of Institutional Management, and must be signed by the parent or parents of the child, or by his legal guardian. Each application shall be accompanied by a certificate signed by a psychiatrist or physician stating that, in his opinion, study or treatment at the institution would be beneficial to the child. The county welfare department of the county in which the child resides shall provide a social history to accompany the application for admission.

INSTITUTIONS FOR THE MENTALLY RETARDED

Kansas has three institutions for the mentally retarded or deficient: Parsons State Hospital and Training Center, Parsons; Winfield State Hospital and Training Center, Winfield; and Kansas Neurological Institute, Topeka.

Persons who have lived in Kansas for one year continuously immediately prior to application may be admitted to one of the three institutions. The residence of a child shall follow and be the same as his parents.

The Parsons State Hospital and Training Center operates a psychiatrically-oriented treatment and training program for ambulatory persons who are mentally retarded with an I.Q. below 50, who are six years of age, but not over 21 years of age.

The program at Winfield State Hospital and Training Center is directed toward the treatment and training of mentally retarded very young children, older people and multi-handicapped patients. Ambulatory persons who are mentally retarded with an

I.Q. below 50 and who are over two years of age and under six, or who are over 21 years of age; or non-ambulatory persons or multi-handicapped persons of any age who are mentally retarded with an I.Q. below 50, may be admitted.

The Kansas Neurological Institute, which is currently being activated, will admit persons who are mentally retarded with an I.Q. below 50, who are between the ages of two and 21. Plans are under way to develop a vocational rehabilitation unit at this institution.

Infants under two years of age, showing signs of severe mental deficiency, are not admitted unless in addition they have obvious malformations and deformities. Children with an I.Q. between 50 and 70 are eligible for admission to an institution for the mentally retarded only if they require evaluation, treatment or training not provided by special classes in the public schools.

Determination as to which of the three institutions an application is to be referred, will be made by the Division of Institutional Management in cooperation with staff of the respective institutions, and based upon the evaluation, treatment and training needs of the applicant as well as available facilities within the institutions. Transfers of patients among the three institutions may be made subject to the approval of the State Director of Institutions when it is considered in the best interests of the patient.

Outpatient services for evaluation are currently available only on a very limited basis due to demands on staff time for inpatient services.

Application forms for admission are available from county directors of social welfare, and must be signed by parents, legal guardian, or spouse of the person for whom application is made. The application also requires the signed statement of a physician indicating that in his opinion the applicant is mentally deficient, and would benefit from the program of the institution. A report of psychological testing, if such testing has been done, and a complete social history of the applicant and his family must also accompany the application.

Charges for care and treatment are explained under "State Hospitals for the Mentally Ill."

TUBERCULOSIS HOSPITALS

Hospital care for tuberculosis patients is provided at the Southeast Kansas Tuberculosis Hospital, Chanute, Kansas, if the person needing treatment is from one of the eighteen southeast Kansas counties; or at the State Sanatorium for Tuberculosis, Norton, Kansas, if the patient resides elsewhere in Kansas. Outpatient diagnostic and treatment services are also provided at Chanute and Norton.

Application forms for admission to the state tuberculosis facilities may be obtained from county direc-

tors of social welfare, and must be signed by the applicant or guardian and his physician. The physician's statement based upon examination of the applicant, recommends admission to a tuberculosis sanatorium or hospital.

Persons who have lived in Kansas for one year continuously immediately prior to application, may be admitted, provided that the residence requirement may be waived in cases where residence cannot be ascertained or where a medical emergency exists.

A tuberculosis patient, or person suspected of having tuberculosis, may be committed by the court to a state sanatorium for tuberculosis, and may be restrained from leaving such sanatorium, if he is found guilty of failure, or refusal to follow orders and instructions of the health officer in regard to examination and treatment.

At the tuberculosis facilities, a charge of up to \$12.00 per day is made for hospitalization. No patient is refused hospitalization or outpatient services because of inability to pay.

Patients hospitalized with schizophrenia, the nation's number one mental disorder, stay in mental hospitals almost one and a half times longer than other mentally ill persons, according to the March issue of *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians. Average hospital residence of a schizophrenic is 10.8 years, compared with 7.5 for patients with other mental disorders.

However, many schizophrenic persons with symptoms not severe enough to warrant hospitalization are treated by physicians other than psychiatrists. Today, 8 of 10 of these patients need not be institutionalized, according to *Patterns*.

If we are to succeed in the great struggle of ideas that is under way, we must first of all know what we believe. We must also become clear in our minds as to what it is that we want to preserve. . . .

—Friedrich A. Hayek

Monotony is the law of nature. Look at the monotonous manner in which the sun rises. . . . The monotony of necessary occupations is exhilarating and life-giving.—*Gandhi*

A truly appreciative child will break, lose, spoil, or fondle to death any really successful gift within a matter of minutes.—*Russell Lynes*

It takes patience to appreciate domestic bliss; volatile spirits prefer unhappiness.—*George Santayana*



Book REVIEWS

CONGENITAL MALFORMATIONS, edited by G. E. W. Wolstenholme and C. M. O'Connor for the Ciba Foundation, Little, Brown, and Co., Boston, 300 pages, \$9.00.

The volume incorporates 12 papers on the subject together with much well-edited discussion by 29 participants from a symposium held in January, 1960. The control of many of the diseases of early childhood recently directed attention at the little known field of teratology at the early extreme of childhood. Chemical, physical, as well as microbial factors may have essentially a three-fold effect, first, an effect on a chromosome with the genetic defect being apparent in the fetus (either early or later in life, such as with Klinefelter's syndrome), secondly, a direct chemical effect on the fetus, and thirdly, there may be an effect on the placenta, which is reflected in the fetus. The latter two may also be mediated by vitamin deficiency. L. S. Penrose and C. E. Ford amongst others discuss mongolism, pointing out that additional autosomal chromosomes had been found for numbers 15, 17, or 21 and that these arose accidentally in older mothers in only about 80 per cent of instances, whereas in 20 per cent this malformation is transmitted familially independent of maternal age. Ingalls examines environmental factors, constituting different risks to fetuses at different ages, relating to cataracts, heart defects, cleft palate, mongolism, and deafness, all due to insults occurring between the fifth and the ninth week of gestation through a variety of teratogenic agents such as rubella, influenza, and maternal hypoxia, etc. A number of investigators deal with experimental models, primarily mice and rats, where a number of anti-neoplastic cytostatic drugs such as nitrogen mustard, myleran, triethylene melamine, actinomycin D and aminopterin have been found to produce a variety of fetal malformations, if litters are not resorbed. Some of the patterns of malformation are rather consistent and others are quite variable. The effects of vitamin A deficiency, thyroxine and X-irradiation are discussed, from animals, giving a survey of the range of effect that might be observed in man. In addition, the causes and morphogenesis of certain clinical syndromes are discussed, such as con-

genital runts, anencephaly, hydramnios, pre-diabetes and hypothyroidism. The symposium appears to cover the field rather comprehensively except for progesterone and its androgenic degradation products which are insufficiently discussed. The volume presents a good introduction to this rapidly growing field.—J.K.F.

FRENCH'S INDEX OF DIFFERENTIAL DIAGNOSIS, 8th Ed. A. H. Douthwaite, Editor, 1111 pages, \$24.00. The Williams & Wilkins Co., Baltimore, exclusive U. S. Agents.

This newest (8th) edition of *French's Index of Differential Diagnosis* is characterized by the deletion of obsolete material and the eradication of excessive cross-references, and at the same time new symptom-complexes and hitherto unrecognized diseases have been carefully integrated into the standard references. The entire scope of modern medical knowledge has been compressed into a single reference, simple enough for the student to use as a text, yet detailed enough for the most exacting clinician to profit by its use.

While the print is smaller than that found in the usual text, still it is clear and readable and the illustrations have been selected with unusual care. Few books on the physician's shelf will provide greater reward in their day to day use.—G.L.T.

FUNCTIONAL ANATOMY OF THE LIMBS AND BACK—A TEXT FOR STUDENTS OF PHYSICAL THERAPY AND OTHERS INTERESTED IN THE LOCOMOTOR APPARATUS, second edition, illustrated. W. Henry Hollinshead, Ph.D., 403 pages, \$5.50. W. B. Saunders Co., Philadelphia, 1960.

This is a well designed book for all those who are interested in physical medicine. It is concise, clear, and above all logically presented. The illustrations are chiefly line drawings, unincumbered by details. In many respects the practicing physician will find this most useful for a thorough run-down on the extremities and back.—P.G.R.



VICTOR E. CHESKY, M.D.

Dr. Victor E. Chesky, 76, physician and surgeon of Halstead, died June 22 of coronary occlusion at the Halstead Hospital. At the time of his death he was Chief of Surgery and President of the Hertzler Research Foundation.

He received the M.D. degree from Northwestern University Medical School in 1915. He interned at Kansas City General Hospital, following which in August, 1916, he became an early associate of the late Dr. Arthur E. Hertzler at the Hertzler Clinic and the Halstead Hospital. During his 45 years in Halstead, he served as Associate and later as Chief of Staff of the Hertzler Clinic and President of the Board of Directors.

He is survived by his widow, Emma, three children and 10 grandchildren.

DALE D. VERMILLION, M.D.

Dr. Dale D. Vermillion, 56, Goodland physician specializing in eye, ear, nose and throat, died June 12 after a three week illness.

Dr. Vermillion was born July 24, 1904 in Tescott, Kansas. He attended Kansas University and the Harvard School of Medicine. He took his internship at the Rhode Island Hospital at Providence.

In addition to being an active member of the Methodist Church, Dr. Vermillion gave much time to civic organizations.

He is survived by his wife, Mary, two sons, one daughter and four sisters.



Personalities—IN KANSAS MEDICINE

Dr. Fred J. McEwen, Wichita, Governor for Kansas, of the American College of Physicians, and **Dr. J. Walker Butin**, Wichita, were among those attending the recent meeting of the American College of Physicians, at Miami.

Dr. Butin also attended the American Gastroenterological Association meeting in Chicago, May 25-27.

Drs. A. E. Cooper, Walter Stephenson, F. D. Kennedy, Norton, and their wives attended the Northwest Medical Society meeting on June 18.

Dr. Paul L. Nelson has completed his residency training in pediatrics. He returned to Concordia July 1 to join the Gelvin-Haughey staff of doctors.

Among those attending the American Medical Association Annual Meeting in New York, from Wichita, in June were **Drs. Reals, Gsell, Wayne Hird, Thorpe**.

The doctors at the Colby Clinic have announced a new appointment to the staff of the clinic. He is **Dr. S. Paul Hornung**, a former Norton doctor and a graduate of the University of Kansas.

Dr. C. V. Haggman of Scandia was one of the 95 Kansas University alumni of 50 or more years to receive pins and membership to the Alumni Association Gold Medal Club at a reunion luncheon on June 4.

Dr. Hugh D. Riordan, Wichita, attended the Third World Congress of Psychiatry in Montreal, and the meetings of the American EEG Society, the

American Neuropathology Society, and the American Academy of Neurology in Atlantic City.

Dr. Don George has ended his practice of medicine in Salina. Dr. George left for the Cherokee Mental Health Institute, Cherokee, Iowa, where he begins a 3-year residency in psychiatry.

Dr. and Mrs. John J. Chung left Sharon Springs, June 20 for New York City to attend the American College of Chest Physicians annual meeting. Dr. Chung took some postgraduate work in diseases of the chest while attending the meeting.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Ira Cox, Jr., M.D.
5829 Woodson
Mission, Kansas

Milburn Hobson, M.D.
6451 Belinder
Mission, Kansas

Alfred Owre, M.D.
270 North Franklin
Colby, Kansas

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FOR SALE—In almost new condition Picker U. S. Army Model portable x-ray with 30 and 60 mil amp control units and 100 mil amp tube. For more details write Box 1-761 in care of the JOURNAL.

WANTED: Two Internists Board eligible or Board certified for long established, 22 man Central Kansas Clinic Group; excellent opportunity to advance. Subspecialties in Gastroenterology or Cardiology desirable. Newly remodeled two hundred bed general hospital closed staff basis adjacent to Clinic quarters. For more information write to Box 1-961 in care of the JOURNAL.

The Kansas Medical Society—1961-1962

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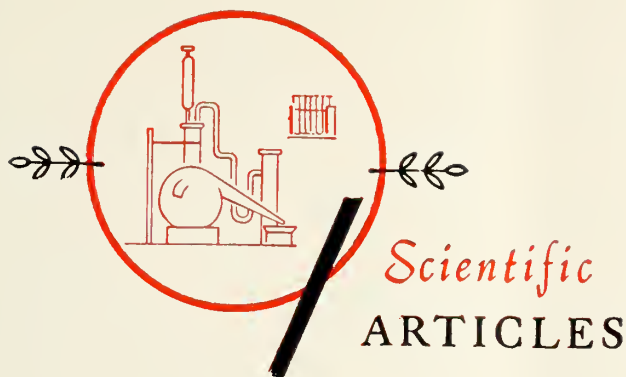
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Lupoid Hepatitis

Report of Five Cases and a Review of the Literature

MANNY MOSER, M.D.,* ROBERT T. MANNING, M.D.**
and MAHLON DELP, M.D.,† *Kansas City*

"LUPOID HEPATITIS" refers to a somewhat ambiguous designation applied to a rather small group of patients with liver disease who are distinct for several reasons, but chiefly because of the demonstrability of the lupus erythematosus (L.E.) cell phenomenon. Mackay *et al.*¹ first coined the term "lupoid hepatitis" to denote such patients with active chronic hepatitis and the L.E. cell phenomenon. Joske and King² in 1955 reported the first two cases of hepatitis in which the L.E. cell phenomenon was observed.

In order to distinguish patients with lupoid hepatitis from those who have disseminated lupus erythematosus and associated hepatitis, Mackay and associates¹ used the term hepatic lupus to denote the latter group. Whether or not the appearance of the L.E. cell in association with hepatitis should be considered as a separate disease entity has not been clearly established.

Case Reports

This article is based on five cases of active chronic hepatitis with a positive L.E. cell phenomenon seen

Five cases of lupoid hepatitis from the University of Kansas Medical Center and twenty-nine cases collected from the literature are reviewed and reported. The etiology remains obscure but the pathogenesis likely involves an auto-immune mechanism. The most frequent clinical signs noted were jaundice, spider angioma, joint symptoms, hepatomegaly and splenomegaly. The laboratory findings are compatible with nonspecific liver injury.

Pathologic examination demonstrates severe liver alteration but no histologic evidence of disseminated lupus erythematosus. Patients with hepatic dysfunction and histological evidence of disseminated lupus erythematosus should not be reported as lupoid hepatitis. Lupoid hepatitis should probably be adopted as the logical diagnostic term in patients with hepatitis and a positive L.E. cell phenomenon.

Department of Medicine, University of Kansas Medical Center.

Presented in part as Dr. Moser's Senior thesis.

* Intern, University of Kansas Medical Center.

** Associate in Medicine, University of Kansas Medical Center.

† Professor of Medicine, University of Kansas Medical Center.

at the University of Kansas Medical Center, in addition to the twenty-nine cases reported in the literature.

The laboratory data are tabulated in Figure 1.

The frequency of the reported signs and symptoms of the disease entity are recorded in Figure 2.

Case 1. K. S. M., KUMC No. 58-6394, a 17-year-old white woman entered the University of Kansas Medical Center on May 6, 1958 complaining of "gastric bleeding" of several months' duration.

She became jaundiced for the first time in September, 1956. Associated with this was a two-week history of migratory joint pain and swelling involving her knees, ankles and shoulders.

After November, 1956 she complained of frequent malaise, fatigue, nausea and intermittent jaundice. She was amenorrheic from September, 1956 to March, 1958 when she had one normal menses. From December, 1956 to the time of admission she had repeated episodes of epistaxis, bleeding from the roof of the mouth and hematemesis, for which she received a total of 20 units of blood. The patient was referred to the University of Kansas Medical Center for evaluation of a "bleeding disorder."

On admission she appeared well developed and well nourished but chronically ill. Positive findings included icterus, a few spider nevi on both upper extremities and slight increase in skin pigmentation. The liver was palpable 5 cm. below the right costal margin, the spleen 5 cm. below the left costal margin. A grade II systolic murmur was audible along the left sternal border.

Laboratory and X-Ray: See Figure 1, Case No. 30. Additional data: Blood ammonia 183 gamma per cent; BUN 4 mg. per cent; platelet count 86,000; complete clot retraction in 2 hours; prothrombin time 61 per cent of normal; bleeding time 60 seconds; coagulation time 13 minutes; macroglobulins were noted; cryoglobulins negative; an upper gastrointestinal series showed esophageal varices.

Because of the undoubted portal hypertension, esophageal varices and repeated hematemesis, a splenectomy and splenorenal shunt was performed on May 12, 1958. She tolerated the procedure fairly well. Postoperatively the white blood count rose to 33,000 and platelets to 350,000. Subsequently she had several episodes of gastrointestinal bleeding and a left hemothorax. Despite therapy, the patient's condition gradually deteriorated and, on the twenty-third postoperative day, she expired after five hours of hepatic coma and shock.

Autopsy showed postcollapse cirrhosis of the liver (Figure 3), 1000 ml. of ascitic fluid, hemosiderosis of the liver, pancreas and gastric mucosa, 2500 ml. left hemothorax, atelectasis of the left lung and an acute gastric ulcer. No histologic changes to suggest disseminated lupus erythematosus were found.

Comments: This case is a classical example of progressive chronic hepatitis in a young female with a positive L.E. cell test. No evidence of disseminated lupus erythematosus was present at autopsy. Splenec-

tomy and splenorenal shunt failed to alter the progressive clinical deterioration.

Case 2. M. N., KUMC No. 58-15493, a 68-year-old woman entered University of Kansas Medical Center on November 9, 1958 complaining of "shortness of breath" of several months' duration and a nosebleed of one day's duration.

In July, 1958 the patient first noted unusual weakness and fatigue, followed shortly by the appearance of marked jaundice. She was hospitalized briefly and a diagnosis of infectious hepatitis was made. Subsequently she did fairly well until September, 1958 when she developed recurrent nausea, vomiting, shortness of breath and pedal edema. Digitalis and diuretics were given without apparent benefit. The symptoms progressed and she entered University of Kansas Medical Center for evaluation and therapy.

Physical examination revealed an acutely and chronically ill white woman who was very dyspneic at rest. Spider angiomas were present. Examination of the chest revealed dullness to percussion and decreased breath sounds in the lower half of the left chest, with scattered, moist rales throughout. Marked distention, a fluid wave and shifting dullness were present abdominally, as was generalized abdominal tenderness to palpation. Three plus pitting edema was evident to the knees bilaterally.

Laboratory: See Figure 1, Case No. 31. Additional laboratory data: Blood ammonia 87 micrograms per cent; prothrombin time 48 per cent of normal.

Strict bed rest and a low salt diet produced no effect on the edema. A paracentesis was done with removal of 2000 ml. of straw-colored fluid, following which she became confused and developed a gross tremor, most marked in the upper extremities. Her state of consciousness varied considerably; at times she was quite bright, alert and oriented, but more frequently she was grossly disoriented, confused and hallucinating. Terminally, electrolyte values were sodium 123 mEq./L., potassium 5.8 mEq./L., chlorides 75 mEq./L., and carbon dioxide 25.7 mEq./L.

She expired quietly on the thirty-third hospital day. Post-mortem examination revealed cirrhosis of the liver (Figure 4), 1500 cc. of ascites and 500 cc. of fluid in each pleural space. Multiple abdominal adhesions, hemorrhagic cystitis, esophagitis and focal mucosal ulceration of the stomach were also noted. There was no histologic evidence of disseminated lupus erythematosus.

Comments: This and the preceding case demonstrate progressive chronic hepatitis with a positive L.E. cell test and no histologic evidence to suggest disseminated lupus erythematosus. The only unusual factor noted was the second patient's advanced age. Most authors delineate lupoid hepatitis as being

most prevalent in young females, although some case reports are in the older age groups.

Case 3. K. L., KUMC No. 59-3301, a 16-year-old

girl entered University of Kansas Medical Center on May 6, 1958 complaining of "jaundice" of eight months' duration.

| Case No. | Age | Sex | Race | TSB | DSB | AP | TSP | SA | SG | SGG | CF | TT | TC | CE | SGOT | SI |
|-------------------|-----|-----|------|-------|------|-------------------|-------|------|------|------|------|------|-----|------|------|-----|
| 1. ² | 37 | F | W | 1.5 | | 16 ^o | 8.8 | 3.7 | 5.1 | 2.8 | 4+ | | | | 27* | |
| 2. ² | 21 | F | W | 3.0 | | 32 ^o | 7.0 | 2.4 | 4.6 | 3.8 | 3+ | | | | | |
| 3. ³ | 50 | M | W | 1.8 | | 18 ^m | 8.3 | 3.3 | 5.0 | | 4+ | 16 | 206 | 66.9 | | |
| 4. ⁴ | 33 | M | W | 7.9 | 3.0 | 9.1 ^u | 8.3 | 2.3 | 6.0 | | 3+ | 17 | 232 | 72 | | |
| 5. ⁴ | 21 | F | N | 4.2 | | | 9.8 | 0.8 | 9.0 | 7.2 | reg. | 7.4 | | | | |
| 6. ¹ | 20 | F | W | 5.0 | | 21 ^o | 9.1 | 3.6 | 5.5 | 3.4 | 3+ | | | | 30* | |
| 7. ¹ | 21 | F | W | 4.8 | | 22 ^o | 6.7 | 2.3 | 4.4 | 3.7 | 3+ | | | | 65* | |
| 8. ¹ | 29 | F | W | 3.5 | | 8 ^o | 7.2 | 2.8 | 4.4 | 2.0 | 3+ | | | | 70* | |
| 9. ¹ | 66 | F | W | 0.6 | | 17 ^o | 6.7 | 2.3 | 3.4 | 21 | 3+ | | | | | |
| 10. ¹ | 16 | M | W | 2.0 | | 27 ^o | 7.4 | 3.2 | 4.2 | 3.0 | 3+ | | | | 125* | |
| 11. ¹ | 75 | F | W | 8.8 | | 20 ^o | 7.3 | 1.9 | 5.4 | 2.6 | 3+ | | | | | |
| 12. ¹² | 19 | F | W | 2.7 | | | 13.1 | 3.7 | 9.4 | | | | | | | |
| 13. ¹⁰ | | F | W | | | | | | high | | | | | | | |
| 14. ¹³ | 29 | F | W | 6.0 | | 37 ^o | 9.4 | 2.4 | 7.0 | 4.4 | | | | | 540 | |
| 15. ¹³ | 19 | M | W | 14.0 | | | 8.4 | 3.1 | 5.3 | 3.7 | | | | | 302 | |
| 16. ¹³ | 57 | F | W | 7.1 | | | 8.0 | 2.7 | 5.3 | 3.5 | | | | | 194 | |
| 17. ¹¹ | 39 | M | W | 8.0 | | 31 ^o | 7.9 | 3.4 | 4.5 | 2.8 | | | | | | |
| 18. ⁶ | 24 | F | W | 2.24 | 1.8 | 44 ^u | 6.58 | 1.84 | | 3.27 | | 16 | 118 | 44 | | |
| 19. ⁶ | 23 | F | W | 29.6 | 21.6 | | 7.18 | 2.27 | | 3.15 | 4+ | 18 | | | | |
| 20. ⁶ | 39 | F | W | 1.10 | 0.84 | 15.4 ^u | 10.1 | 2.85 | | 4.69 | 4+ | 13 | | | | |
| 21. ⁶ | 21 | F | W | 1.1 | 0.9 | 2.9 ^u | 10.0 | 1.3 | | 7.34 | | | 179 | 65 | | |
| 22. ⁶ | 20 | F | W | 2.0 | 1.3 | 32 ^u | 10.55 | 2.77 | | 6.0 | 4+ | 12 | 87 | | | |
| 23. ⁶ | 45 | F | W | 9.2 | 6.5 | | 8.03 | 2.96 | 5.07 | | 4+ | 27 | 197 | | | |
| 24. ⁶ | 55 | F | W | 5.3 | 5.04 | 18.4 ^u | 8.03 | 1.3 | | 4.85 | 4+ | 18 | 111 | | | |
| 25. ⁷ | 15 | F | W | 2.0 | | | 7.4 | 2.3 | 5.1 | | | | | | | |
| 26. ⁷ | 28 | M | W | 0.6 | | | 6.8 | 3.2 | 3.6 | 1.9 | | | | | | |
| 27. ⁷ | 13 | F | W | 4.8 | | | 6.5 | 2.9 | 3.6 | 1.9 | | | | | 900 | |
| 28. ⁸ | 32 | F | W | | | 12 ^o | 6.3 | 3.1 | 3.2 | | pos. | pos. | | | | |
| 29. ⁸ | 21 | F | W | | | | 10.7 | 1.7 | 9.0 | | pos. | pos. | 110 | | | |
| 30. | 17 | F | W | 2.3 | 0.9 | 2.9 ^u | 8.05 | 2.7 | 5.35 | | 4+ | 66 | 128 | 66 | 143 | 145 |
| 31. | 68 | F | W | 2.6 | 1.0 | 1.2 ^u | 5.36 | 1.86 | 3.50 | | 4+ | 33 | 159 | 50 | 20 | 60 |
| 32. | 16 | F | W | 23 | 15.5 | 3.5 ^u | 10.0 | 2.05 | 7.95 | | 4+ | 38 | 94 | 15 | | 80 |
| 33. | 37 | F | W | 11.60 | 4.0 | 5.6 ^u | 5.65 | 2.86 | 2.79 | | 1+ | | 246 | 62 | 95 | 225 |
| 34. | 46 | F | W | 3.5 | 1.7 | 7.3 ^u | 6.83 | 2.88 | 3.95 | | 4+ | 64 | 221 | 39 | | 360 |

Key:

TSB = Total serum bilirubin SGG = Serum gamma globulin * = reported after original case report

DSB = Direct serum bilirubin CF = Ceph. flocc. □ = Bodansky Units

AP = Alkaline phosphatase TT = Thymol turbidity ○ = King-Armstrong units

TSP = Total serum protein TC = Total cholesterol Δ = Mill. mol unit

SA = Serum albumen CE = Cholesterol esters ⊠ = Not given

SG = Serum globulin SGOT = Transaminase SI = Serum Iron

Figure 1. Laboratory data.

She was asymptomatic until February, 1958 when excessive bleeding followed a tooth extraction. Subsequently she was generally well except for some malaise until July, 1958 when she first noted jaundice. She visited her physician for the first time in August, 1958. She was placed on restricted activity but was allowed to attend school in September. The jaundice and malaise persisted.

In January, 1959 she entered the local hospital for evaluation, at which time her skin was green-yellow in color, her stools were clay colored and urine was dark. She was referred to the University of Kansas Medical Center for further evaluation.

On admission she was a well-developed, well-nourished young woman in no apparent distress. The skin was markedly icteric and moderate acne was present. Palmar erythema and spider angioma were not evident. Examination of the abdomen revealed a firm, nontender liver edge 4 cm. below the right costal margin. The spleen was firm, nontender and 4 cm. below the left costal margin.

Laboratory and X-Rays: See Figure 1, Case No. 32. Additional data: Blood ammonia 97 gamma per cent; BUN 9.5 mg. per cent; creatinine 1.3 mg. per cent; prothrombin time 45 per cent of normal. X-ray examination demonstrated generalized bone demineralization. Esophageal varices were not present.

The patient was placed at bedrest and received a 1650 mg. sodium-60 Gm. protein diet. Forty mg. hydrocortisone in divided doses and 250 mg. chloraquin were given daily. The patient showed gradual clinical improvement, manifested chiefly by amelioration of the malaise and increased sense of well-being. She was discharged on bedrest and medications as noted above. The serum bilirubin was 16.8 mg. per cent at the time of discharge.

Comments: This patient demonstrates the clinical picture of marked liver disease with a positive L.E. phenomenon in a young female, without clinical evidence of disseminated lupus erythematosus. Correspondence with the family indicates the patient is improving at home.

Case 4. B. S. F., KUMC No. 58-10405, a 37-year-old woman entered the University of Kansas Medical Center on October 30, 1958 complaining of "weakness and an enlarged spleen" of several months' duration.

The patient was well until fifteen months prior to admission when she had an episode of nausea, vomiting, abdominal pain, acholic stools and jaundice. A diagnosis of infectious hepatitis was made and she was hospitalized for one month. Slow recovery occurred over a six-week period. The patient was rehospitalized with recurrence of jaundice five months later, and was found to have a pancytopenia and positive L.E. cell phenomenon. She continued to have intermittent symptoms of nausea, vomiting, abdom-

inal pain and jaundice, and was referred to the University of Kansas Medical Center because of the persistent pancytopenia.

Physical examination on admission showed a well-developed, moderately well-nourished woman who appeared pale but in no distress. Abdominal examination revealed moderate right upper quadrant tenderness, but no hepatomegaly was noted. The tip of the spleen was palpable on deep inspiration but was not tender. One plus pretibial pitting edema was present with associated nonpitting swelling of the ankles. Several ecchymotic areas were present over the thighs.

Laboratory and X-Ray: See Figure 1, Case No. 33. Additional data included platelets 16,000. No esophageal varices could be demonstrated on an upper gastrointestinal series.

The clinical impression was postnecrotic cirrhosis of the liver with hypersplenism and pancytopenia. A shunt procedure was felt to be inadvisable because of the marked thrombocytopenia. Liver function studies at this hospital remained normal, with a total serum bilirubin of 0.7 mg./100 ml., serum albumin of 3.45 Gm./100 ml., serum globulin of 2.27 Gm./100 ml., alkaline phosphatase of 1.4 millimol, bromsulphthalein 10 per cent retention, and thymol turbidity of 3. The clinical course was unchanged from admis-

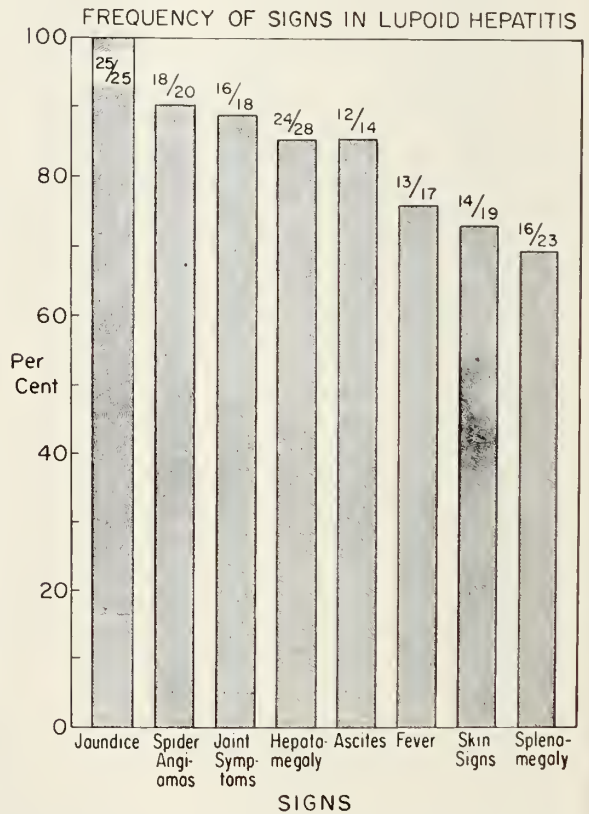


Figure 2. Frequency of signs and symptoms in lupoid hepatitis.

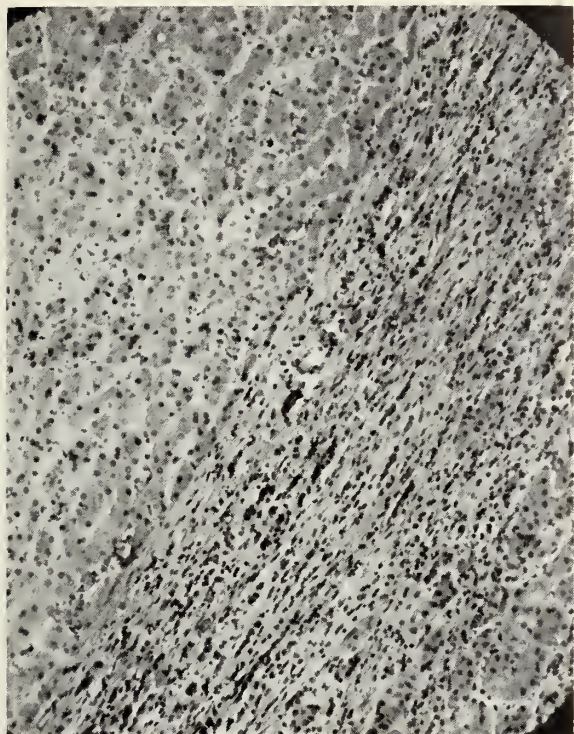


Figure 3. Liver tissue at autopsy, Case No. 1.

sion. The patient was discharged on a 60 Gm. fat diet, 10 mg. hydrocortisone b.i.d., 5 mg. folic acid t.i.d., and 1000 micrograms vitamin B₁₂ weekly.

She subsequently expired at home following recurrence of bleeding and ensuing hepatic coma. An autopsy was not obtained.

Case 5. M. B., KUMC No. 59-8815, a 46-year-old white woman entered the University of Kansas Medical Center on June 11, 1959 complaining of intermittent swelling of the fingers, wrists, knees, ankles and shoulders with an associated recurrent jaundice.

She was first hospitalized two weeks in October, 1958 for "hepatitis," manifested by severe nausea, vomiting, dark urine, light-colored stools and icterus. Associated with the "hepatitis" was mild painful joint swelling. From October, 1958 to June, 1959 intermittent nausea, vomiting, jaundice and increasingly severe joint swelling with pain were present. She was referred to the University of Kansas Medical Center for further diagnostic work-up and treatment.

On admission she appeared well developed and obese but not in distress. The sclerae were mildly icteric. There were no spider nevi or pigmentary changes noted on examination of the skin. Abdominal examination revealed the liver to be three finger-breadths below the right costal margin, firm and tender. The spleen and kidneys were not palpable. Positive findings of the extremities were limited to swelling of the feet and ankles bilaterally with slight tenderness.

Laboratory and X-Ray: See Figure 1, Case No. 34. Additional data: Leucine aminopeptidase 190; platelet count 243,000; prothrombin time 91 per cent of normal; bleeding time 30 seconds; clotting time 13 minutes. Liver biopsy showed moderate portal fibrosis with slight cellular regeneration. X-ray revealed no esophageal varices or bone lesions.

She was placed at complete bedrest with 1400 calorie, 1650 mg. sodium-40 Gm. fat diet with essentially no clinical change. The laboratory values, as noted in Figure 1, Case No. 34, did not change during her hospitalization. She was discharged on 10 mg. hydrocortisone b.i.d. every other day, bedrest and the diet described above. She has been followed in the out-patient clinic for six months and has slowly improved. The joint symptoms, nausea, vomiting and icterus have been minimal. The hepatic function studies demonstrate improvement, with the total serum bilirubin dropping from 6.6 mg./100 ml. to 2.9 mg./100 ml.

Comments: This case demonstrates a more bizarre clinical picture with definite rheumatoid arthritis, in addition to the progressive liver disease with the L.E. cell phenomenon. Others have described the same diffuse protean symptoms in their cases of active chronic liver disease with a positive L.E. cell test.

Discussion

Etiology and Pathogenesis:

The etiology and pathogenesis of lupoid hepatitis have not been elucidated and continue to be controversial.

The primary lesion in the two cases reported by Joske and King² was believed to be an active chronic viral hepatitis, and the L.E. cell phenomenon was in some way a sequela of the hepatitis. They did not believe they were dealing with primary disseminated lupus erythematosus since this disease does not produce the gross changes in liver structure observed in their cases.

Demonstration of the L.E. cell phenomenon usually indicates disseminated lupus erythematosus, but Bettley³ feels that it is not pathognomonic. He also notes that L.E. phenomenon is associated with gamma globulin abnormality, and the L.E. cells found in lupoid hepatitis might be linked with the consistent gamma globulin changes seen in this group of patients. He suggested that the findings of myelomatosis in his one case might have been partly responsible for the production of the L.E. phenomenon.

Heller *et al.*⁴ suggested the L.E. cell phenomenon in these patients represents a false-positive test, and the phenomenon may have an immunologic basis.

L.E. cells are not obtained in the blood of patients with hepatic cirrhosis even with very high serum globulin values, but Sherlock⁵ states they have been noted in the cirrhosis occurring in young girls with

adrenocortical overactivity. She feels it may be a specific disease or merely a variant of posthepatic cirrhosis.

Mackay *et al.*¹ were of the opinion that parenchymal cell damage might be the initiating factor of an auto-immune phenomenon in this group of patients. Hepatic cell protein, released via cell necrosis or injury, is postulated to act as an antigen and thus stimulate antibody production. Such antibodies are "anti-liver" and produce further damage upon combination with hepatic cell protein. Such a process would be cyclic and, unless interrupted, would lead to progressive liver cell injury. This concept is nonspecifically supported by the finding of high levels of gamma globulin in patients with lupoid hepatitis. Recent developments in fluorescent tagging of antibodies should provide confirmation or refutation of this hypothesis.

Bartholomew and coworkers⁶ expressed the opinion that the cases reported had many features in common with the present concept of diffuse lupus erythematosus, and that these findings were foreign to any current concept of primary liver disease. They were unable to rule out the possibility of two disease entities superimposed, and indicated that until a specific test for the virus of hepatitis is perfected this possibility must not be discarded.

Lupoid hepatitis and lupus erythematosus may be distinguished as separate entities by clinical findings and pathological changes as concluded by Mackay and his group.⁷ However, overlapping features in the two groups suggests a similar pathogenesis, possibly mediated via an abnormal auto-immune mechanism with destruction of host tissues.

Lupoid hepatitis and disseminated lupus erythematosus are believed to have a common immunologic basis, as noted by Hutchings and Wigley,⁸ but may have a separate etiology.

A viral etiology was proposed in ten of the thirty-four case reports, and alcohol was felt to be the initiating factor in one case. There was no mention as to specific etiology in the remaining cases.

Signs and Symptoms:

The most frequent symptoms and signs observed in patients with lupoid hepatitis are listed in Figure 2. Bartholomew and cohorts⁶ are of the opinion that the clinical symptoms found in their patients are not compatible with liver disease alone. They frequently noted sun sensitivity, pleuritis, arthritis, thrombophlebitis and transfusion or drug reactions. Such signs and symptoms are recorded infrequently in other case reports. It should be noted that one of their patients had a histological diagnosis of disseminated lupus erythematosus, and two others had suggestive evidence.

Of the skin manifestations reported, acnes or atyp-



Figure 4. Liver tissue at autopsy, Case No. 2.

ical rashes have appeared frequently. The arthralgia observed is not infrequently seen with viral hepatitis, but not so frequently as in lupoid hepatitis. The other signs observed are commonly seen with liver disease of all types.

Laboratory:

Biochemical studies in patients with lupoid hepatitis reveal fairly constant abnormalities such as elevated total serum bilirubin, decreased serum albumin, elevated serum globulin, especially the gamma fraction, positive cephalin flocculation test, and elevated serum glutamic oxaloacetic transaminase activity. These are, of course, nonspecific indications of liver injury.

Six patients had a positive serologic test for syphilis and three others a positive Coombs' test. These findings, in addition to a consistently elevated serum gamma globulin, are suggestive of an immunologic disorder as noted by Mackay *et al.*⁷

Kofman and his group⁹ studied serum and liver biopsy specimens in twenty-five patients with disseminated lupus erythematosus, concluding that the apparent hepatic dysfunction represented (in most patients) an abnormal plasma protein pattern rather than actual hepatic parenchymal abnormalities.

Post-mortem Findings:

Autopsies, with histological studies, have been recorded by several observers.

The first autopsy (Case No. 3) was reported by Bettley³ on a patient with lupoid hepatitis. Post-mortem examination confirmed the diagnosis of multinodular cirrhosis. Particular attention was directed to the possibility of systemic lupus erythematosus, but no evidence was found.

The autopsy findings were reported by Heller *et al.*⁴ in a case of lupoid hepatitis, and the histological sections demonstrated subacute hepatic necrosis with cirrhosis formation. There was no pathological evidence consistent with disseminated lupus erythematosus.

Kidney biopsy (Case No. 6) and autopsy (Case No. 9), reported by Mackay's group,¹ showed changes in the glomerular capillary walls similar to that seen in disseminated lupus erythematosus.

Wilkinson and Sacker¹⁰ reported post-mortem findings (Case No. 13) of portal cirrhosis, but no evidence of systemic lupus erythematosus.

Cirrhosis and chronic ulcerative colitis at necropsy in a questionable case (Case No. 17) of lupoid hepatitis was demonstrated by Gray *et al.*¹¹ No evidence of disseminated lupus erythematosus was found.

In Cases No. 18, No. 19 and No. 23, reported by Bartholomew and associates,⁶ autopsies were done; and a kidney biopsy in one (Case No. 22). Histological changes in Case No. 19 were compatible with a diagnosis of disseminated lupus erythematosus. In two other cases (Cases No. 18 and No. 22), there were definite vascular changes in the kidney, but no conclusion was drawn as to their compatibility with a diagnosis of disseminated lupus erythematosus. In Case No. 23, no mention was made in regard to the histological sections of the kidney or in other tissues.

Mackay *et al.*⁷ presented two more autopsies in cases of lupoid hepatitis (Cases No. 25 and No. 27), but no statement was made about the post-mortem findings to suggest disseminated lupus erythematosus.

The autopsy findings in Cases No. 30 and No. 31 in this series gave no evidence to suggest disseminated lupus erythematosus even after a concentrated effort to demonstrate such lesions.

Histological changes in the liver were studied by Mackay and coworkers⁷ in nineteen patients with hepatic dysfunction in disseminated lupus erythematosus. Minor changes were noted in most of the cases, and nodular cirrhosis was found in two patients. One patient with such cirrhosis did display the clinical and biochemical features of active chronic hepatitis.

From autopsy and biopsy reports it is clear that many patients with lupoid hepatitis have no histological evidence of disseminated lupus erythematosus. Patients with histological evidence of disseminated lupus erythematosus should not be included in the category of lupoid hepatitis.

Acknowledgments

We wish to express our sincere thanks to Dr. Sloan J. Wilson, Dr. Arthur P. Klotz and Dr. Robert W. Weber of the University of Kansas Medical Center staff for use of their cases in this report.

Bibliography

1. Mackay, I. R., Taft, L. I. and Cowling, D. C.: Lupoid Hepatitis. *The Lancet Press* 2:1323, (Dec. 29) 1956.
2. Joske, R. A. and King, W. E.: The "L.E.-Cell" Phenomenon in Active Chronic Viral Hepatitis. *The Lancet Press* 2:477, (Sept. 3) 1955.
3. Bettley, F. R.: The "L.E.-Cell" Phenomenon in Active Chronic Viral Hepatitis. *The Lancet Press* 2:724, (Oct. 1) 1955.
4. Heller, P., Zimmerman, H. J., Rozengvaig, S. and Singer, K.: The L.E.-Cell Phenomenon in Chronic Hepatic Disease. *New Eng. J. Med.* 254:1160, (June 21) 1956.
5. Sherlock, S.: *Diseases of the Liver and Biliary System*. 720 pp. Springfield, Ill., Charles C Thomas, 1955. Pp 84 and 319.
6. Bartholomew, L. G., Hagedorn, A. D., Cain, J. C., and Bagenstoss: Hepatitis and Cirrhosis in Women with Positive Clot Tests for Lupus Erythematosus. *New Eng. J. Med.* 259:947, (Nov. 13) 1958.
7. Mackay, I. R., Taft, L. I. and Cowling, D. C.: Lupoid Hepatitis and the Hepatic Lesions of Systemic Lupus Erythematosus. *The Lancet Press* 1:65, (Jan. 10) 1959.
8. Hutchings, H. E. and Wigley, R. A. S.: Lupoid Hepatitis. *New Zealand Med. J.* 53:12, (Feb.) 1959.
9. Kofman, S., Johnson, G. C. and Zimmerman, H. J.: Apparent Hepatic Dysfunction in Lupus Erythematosus. *A.M.A. Arch. Int. Med.* 95:669, (May) 1955.
10. Wilkinson, M. and Sacker, L. S.: The Lupus Erythematosus Cell and Its Significance. *Brit. M. J.* 2:661, (Sept. 21) 1957.
11. Gray, N., Mackay, I. R., Taft, L. I., Weiden, S. and Wood, I. J.: Hepatitis, Colitis and Lupus Manifestations. *Amer. J. Digest. Dis.* 3:481, (July) 1958.
12. Bearn, A. G., Kunkel, H. G. and Slater, R. J.: The Problem of Chronic Liver Disease in Young Women. *Amer. J. Med.* 21:3, (July) 1956.
13. O'Brien, E. N., Goble, A. J. and Mackay, I. R.: Plasma-Transaminase Activity as an Index of Effectiveness of Cortisone in Chronic Hepatitis. *The Lancet Press* 1:1245, (June 14) 1958.

Editor's Note: This article was submitted to THE JOURNAL for publication in March, which is the University of Kansas Medical Center issue. Due to space limitations at that time, THE JOURNAL was able to publish only half of the articles submitted.

The remaining papers will appear in the upcoming issues. THE JOURNAL would like to thank these authors for being so patient while waiting for their article's publication.

Not a tenth of us who are in business are doing as well as we could if we merely followed the principles that were known to our grandfathers.—*William Feather*

It may be that the race is not always to the swift, nor the battle to the strong—but that's the way to bet.—*Damon Runyon*

A parliament is nothing less than a big meeting of more or less idle people.—*Walter Bagebot*

Tracheotomy

The Problem of Decannulation of Tracheotomized Patients

F. R. KIRCHNER, M.D.,* *Kansas City*

MANY PAPERS ABOUT TRACHEOTOMY have been written. In some of them decannulation is often considered, or at least pointed out, but few discuss the problems that arise concerning patients with indwelling tracheotomy cannulas, on whom a decision must be made regarding removal of the tracheotomy tube.

In the laryngological field this problem has been widely discussed, mostly related to decannulation after the diverse laryngeal procedures. This information is extremely useful for managing primary laryngeal problems, but is insufficient for other cases on whom tracheotomies have been performed for other indications.

The care of the latter cases is primarily that of the otolaryngologist, but it may be necessary at some time for anyone in the medical profession to have to perform a tracheotomy. Thereafter, the problem of decannulation will become apparent.

For anyone performing a surgical procedure it is essential not only to understand the procedure, but to know how to evaluate correctly the indications and the limitations of technique, the prognostic data, and possible complications of the procedure itself.

If the procedure is an emergency, the performer's responsibility can be limited to the early recognition of the problem and his immediate action should be directed toward counteracting, relieving or bypassing the obstacle. When these steps are carried out properly and on time they will resolve the immediate problem; nevertheless, it is not until the complete resolution of the problem is reached that we can say that the patient has received the maximal benefit from treatment.

This last point will be the basis for our judgment in regard to the degree of normality, compensated normality or modified normality that the patient will experience thereafter.

This paper is an attempt to point out some of the basic clinico-physiological facts upon which decannulation should be based.

General Consideration

The primary consideration in decannulation is the fact that it is an individual problem. A descriptive

account of individual cases will be insufficient to outline the general consideration of the problem. On the other hand, as has been previously stated, decannulation should always be considered on an individual basis.

The only way to reconcile these two statements would be by realizing the substratum of the problem. From that the basic ideas will emerge, and in the transformation of these ideas to practical principles the answers for individual cases will be obtained.

• In this article the importance of following specific indications in every case of decannulation of a tracheotomy patient is stressed.

• It is necessary to have a basic knowledge of the physiopathology and systemic relationships of the respiratory system before decannulation.

• The combination of this knowledge with the direct study of the case itself will yield proper indications for the procedure.

• Decannulation is a medical accomplishment because it yields restoration of normality, and in some cases, complete health of the patient.

Decannulation is intimately related to pulmonary ventilation. It is on the understanding of the physiopathology of this function and its systemic relationships where the practical principles for decannulations are to be obtained. By definition, the volume of air in liters breathed by an individual is called pulmonary ventilation. One tenth of this volume reaches the alveolae. This air provides O_2 to the alveolar capillaries and removes the CO_2 released by the same vessels. In a simple obstruction of the respiratory tract, the primary physiological change observed is a reduction in the ventilatory capacity of the pulmonary bellows. Due to this impairment of O_2 , saturation of the blood decreases, giving origin to anoxemia and tissue anoxia. In contrast, the CO_2 in the blood increases, giving origin to hypercapnea.

Hypercapnea produces an increase in free carbonic acid in the blood phenomenon known as respiratory

* From the Department of Otorhinolaryngology of the University of Kansas School of Medicine.

acidosis. Respiratory acidosis, if sustained, leads to metabolic acidosis.

Each of these disturbances by itself, if severe enough, can cause tissue damage and death.

Gray, in his paper about the physiology of respiratory obstructions, was able to correlate the different magnitude of these phenomenon in relation with the degree of obstruction. For the purpose of demonstration his experiment, with some modification, was repeated.

The dog was elected as the experimental animal, for its anatomy was familiar, and the available facilities for its care were superior. The dog was placed under light anesthesia of sodium nembutal. The hypopharynx and larynx were anesthetized with 5 per cent cocaine solution. This was followed by the insertion of a fitting endotracheal tube. The femoral artery and vein were surgically exposed and No. 18 polyethylene tubes were inserted to obtain repeated blood samples. Thereafter, the endotracheal tube was obstructed in about 10 per cent of its diameter. Ten minutes later arterial blood samples were obtained and O_2 , CO_2 and Ph were determined. Following this same pattern of experimentation the obstruction of the tube was increased to 20, 30, 40, 50 and 60 per cent. Each of these obstructions was followed by sampling arterial blood. Figure 1 illustrates the magnitude of the changes encountered in the saturation of O_2 , CO_2 and Ph in relation with the degree of obstruction.

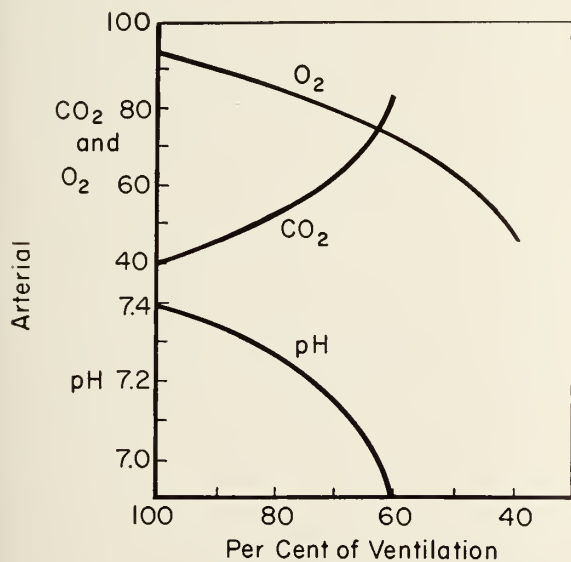


Figure 1.

Since the pulmonary ventilation is the algebraic sum of the partial effects of the separate agents, the logical approach to the removal of a tracheotomy tube is when these separate agents reach normality or its neighborhood. At that point, tracheotomy has

rendered its maximal benefits and the tube must be removed.

The condition of the pulmonary parenchyma is of extreme importance regarding decannulation. Gaseous interchange in the lungs may be hindered not only by obstruction of the larynx, trachea or bronchae, but also by spasm of the smooth muscles of the bronchae by the presence of fluid in the alveolae (alveolitis edema), by decrease in the respiratory surface caused by pulmonary collapse (pneumothorax), compression of the lung (pleural effusion), inflammatory processes (pneumonia), obstruction of a pulmonary blood vessel (infarct), or by loss of elasticity of the pulmonary parenchyma (emphysema).

In these cases a tracheal cannula aids ventilation by decreasing the amount of work of the respiratory system by reducing the distance (dead space), in which the air column must move.

Until now we have analyzed the effectiveness of respiration. Another factor intimately related to decannulation is the analysis of respiration as work. In this, the factor of time has to be abolished and the consideration will lean toward the mechanical part responsible for this function.

Respiratory movements are the resultant of muscular vectors. Their evaluation is decisive for decannulation and the inspiratory muscles, as well as the expiratory muscles, are of equal importance. The hypo, or inactivity of the inspiratory muscles, will produce hypoventilation. The inefficacy of the expiratory muscles will cause impairment of the cleansing function of the respiratory tract, and will likewise reduce ventilation. When both mechanisms are operative and assure some margin of reserve for ventilation, decannulation should be performed.

Respiratory muscular activity, like any other biological activity, should be analyzed from the point of view of its origin, regulation, transmission and action. Respiratory muscles are under voluntary and involuntary control. The former, like other cortical function, in certain circumstances is apt to simulate a pathological condition that does not exist organically. For example, one of the problems of decannulation encountered in infancy and childhood is that in which the child has conditioned himself by breathing through tracheotomy, and in spite of good respiratory function through normal airway, developed apnea and other symptoms as soon as the tube is obstructed. Even if breathing can be stopped voluntarily for a certain time, never long enough as to produce death by asphyxia, this demonstrates that cortical control of respiration is limited.

The most important neural factor of respiration is the respiratory center. It is located on the floor of the fourth ventricle and responds automatically to nervous or humoral stimuli.

In neurological diseases or cerebral trauma in which

this center is involved, the time for decannulation will be indicated by the first signs of regression of the neurological disturbance. Encephalitis, bulbar poliomyelitis, cerebral palsy, etc., fall into this category. Muscles of the pharynx and tongue, under certain pathological circumstances, will obstruct the airway by the double mechanism of reducing the lumen and by poor handling of secretions. Signs such as adequate deglutition will help decide when to decannulate these cases.

The laryngeal muscles which form part of the airway and modify the airway itself are of capital importance in considering decannulation. With regard to laryngeal muscles, usually good phonation after obstruction of the tracheotomy stoma, and in some cases an endoscopic examination, are enough to determine when a tracheotomy tube should be removed.

Most of the involuntary mechanism of the pharynx and larynx responds to a sensitive stimulus. Important reflexes, such as cough reflex, can be abolished if the sensitive component of the arch is hindered. So, the assurance of a normal sensitivity will help carry out a successful decannulation.

Tracheotomy itself can involve some complications that can interfere with decannulation. The presence of subcutaneous emphysema, the level at which tracheotomy was performed, the length and caliber of the tube, can, under certain circumstances, create differences in this procedure. In cases in which tracheotomy is performed for the avoidance of the positive pressure exerted in the vascular system by cough, as in some cases of cardiac and vascular surgery, decannulation can be carried out when the patient shows clinical evidence of vascular and cardiac compensations.

Case Reports

The following description contains random cases of tracheotomy and decannulation seen by the Department of Otorhinolaryngology at the University of Kansas Medical Center.

Case No. 1. C. S., KUMC No. 58-3817. Eight-month-old white male, admitted to the pediatric service with the complaint of intermittent spells of gasping respirations and cyanosis. These episodes started one week before admission. Consultation was requested to the Department of Otorhinolaryngology. On initial examination it was noted that the patient had normal ventilatory functions as well as deglutition and phonation. During his stay in the hospital he developed a sudden episode of respiratory obstruction and cyanosis and was resuscitated after mouth-to-mouth breathing. The child recovered and was well for a few days until a similar episode occurred. At that time it was necessary for insertion of a broncho-

scope for the ventilatory obstruction to cease. Tracheotomy was performed and the patient did well thereafter.

On this admission several endoscopic and x-ray studies were secured in the attempt to discover the etiology of the obstruction, but the results were inconclusive. Due to the fact that this baby was successfully operated upon a few hours after birth for a tracheoal fistula, where according to the operative record, "A fistula was resected from the upper middle third of the esophagus to the bifurcation of the trachea," it was accepted that tracheomalacia was the causative factor for the episodes of obstruction.

After instructing the parents about tracheotomy care the child was discharged to their care. Two tracheotomy tubes of the same caliber were given to them to take to the physician for the weekly exchange of cannulas.

Three months later the patient was re-admitted for further studies. New endoscopic examinations did not reveal evidence of intrinsic obstruction of the airway, and possible extrinsic obstructions were ruled out by clinico-radiological studies.

Decannulation was started in a progressive fashion: first, by using progressively smaller tubes until the smallest caliber was reached, second, by obstructing the opening of the tube. No evidence of hypoventilation was encountered, and the patient was discharged with a taped "00" tracheotomy tube.

After ventilating normally for three weeks the child was again admitted for final decannulation. The tube was removed, and for two days the baby did well until the morning of the third day when he developed a final episode of respiratory obstruction. At that time re-insertion of tracheotomy tube and immediate artificial respiration were without avail, and the patient died.

In autopsy a diverticulum of the trachea was found located at the site of bifurcation, a remnant undoubtedly of the tracheoesophageal fistula. It was easy to demonstrate in the specimen that the inversion of this diverticulum into the trachea was responsible for the respiratory obstructions experienced by the patient.

Case 2. W. P., KUMC No. 59-5372, 31½-month-old white male. This patient was seen in consultation by the Department of Otorhinolaryngology after being admitted on the pediatric service. The complaint was that of fever, cough and respiratory embarrassment for three days' duration. During initial examination it was obvious that the patient was suffering respiratory obstruction. Laryngeal stridor and chest retraction were marked and rales in either pulmonary field were present. The baby was immediately placed in a croupette and started on systemic antibiotics. After several hours of observation it was appreciated that the signs of hypoventilation were

more marked, and tracheotomy was done. After five days the baby was well, without temperature, and the lungs were radiologically clear. An attempt was made at that time to tape the tracheotomy but the child immediately became apneic and the tape was removed. Trying to rule out mechanical obstruction, several laryngoscopies were performed, all of which proved to be inconclusive. After three weeks of futile attempts at decannulation it was observed that the baby went into episodes of apnea only when he was awake, and the tracheotomy tube was taped. He tolerated the taped tracheotomy perfectly well when asleep. It was decided that the apneic reaction was being produced by a conditioned reflex that the child had on the tracheotomy tube. To satisfy this reflex the tracheotomy tube was removed when the patient was asleep, and the silver plate of this cannula was left tied around the neck. A few days later it was possible to remove the plate entirely. Since that time, the baby has done well.

Case No. 3. N. P., KUMC No. 56-1967, 6½-year-old white male. In 1956 this subject was diagnosed as having pseudohypertrophic, progressive muscular dystrophy. Since that time, the patient had been admitted 21 times suffering from pneumonia. On each admission bronchoscopy had been required.

Fourteen months ago he was admitted with pneumonia. On admission it was appreciated that the respiratory muscles were barely capable of carrying on the effort of ventilation and incapable of producing the extra effort needed in coughing. Bronchoscopy and tracheotomy were performed. The patient did well and was discharged, and since that time hospital admissions have not been required.

In the preceding descriptions it is possible to analyze different cases on whom tracheotomies were performed following diverse indications. The reason for tracheotomy is objectively described, and the different aspects presented for decannulation are recorded. It may be noted that most of them followed different indications for decannulation and required different pre-decannulation studies. This emphasizes the previous statement that decannulation should be considered on an individual basis. It is also apparent that it is indispensable for one to understand the concepts of pulmonary physiology in health, as well as in disease.

Conclusions

As in tracheotomy, decannulation of a tracheotomy patient is basically a matter of clinicophysiological indications. To follow indications in this regard is as important and as necessary as the indications for which the tracheotomy was performed. Each decannulation should be considered individually, but the knowledge of the general concepts of ventilation and pulmonary functions and their pathological manifes-

tations in disease is necessary for the arrival of these conclusions (*Figure 2*).

A practical and useful rule to follow in a case of

CLINICAL CONSIDERATIONS Before DECANNUATION

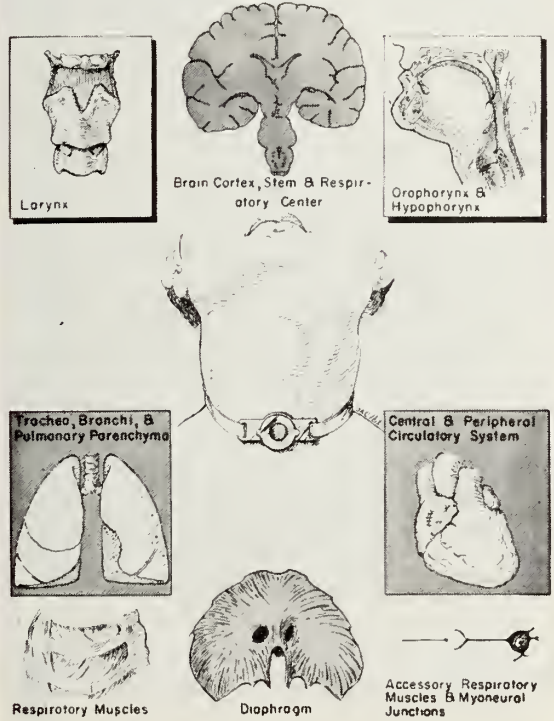


Figure 2.

decannulation is to divide consideration and examination above and below the site of tracheotomy. Not until the case is reviewed and these three sites considered, should decannulation be performed. It is absolutely indicated to leave an indwelling tracheotomy tube when the indications for decannulation are not present or are not clear.

References

1. Beck, A. L., M.D.: "Deep Neck Infections," chapter 16, vol. IV, Coats, Shenk & Mueller.
2. Blalock, A., M.D., Harrison, T. R., M.D., and Wilson, C. P., M.D.: Partial tracheal obstruction. Effects on circulation and respiration of morphinized dogs, *Arch. Surg.*, 13:81, 1926.
3. Gray, J. S., M.D.: The multiple factors theory of the control of respiratory ventilation, *Science*, 103:739, 1946.
4. Downing, J. A., M.D.: Some mechanical tracheotomy

(Continued on page 411)

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Speech

The Evaluation of Speech Mechanisms

RALPH L. SHELTON, JR., Ph.D.; WILLIAM M. DIEDRICH, Ph.D.;

KARL YOUNGSTROM, M.D., Ph.D., *Kansas City*

THE EVALUATION OF SPEECH DISORDERS involves appraisal of the speech mechanism, assessment of other factors which influence speech learning, and description of the acoustic phenomena which are produced. Knowledge of the relationship between structure and speech is important to the practicing physician who may be asked to examine speech handicapped persons so that medical problems interfering with speech learning may be identified and, if possible, resolved. Certain information pertaining to examination of the speech mechanism is presented; and employment of radiography, which has been used in phonetics research and in the study of voice and speech physiology since shortly after the discovery of Roentgen rays,¹² is emphasized. Recently interest in utilization of radiography in speech has increased because of the availability of cinefluorography with image intensification.^{9, 13, 17} At the University of Kansas Medical Center research and clinical projects utilizing radiography have been carried out or are underway in the areas of esophageal speech and cleft palate speech.

Equipment

The principal item of equipment used in these studies is a cinefluorographic unit composed of a tilting x-ray table which has a 150 kv undertable tube, 0.3 and 1.2 mm focal spot, an x-ray generator of 300 ma at 150 kvp capacity, a nine inch image intensifier, a sixteen millimeter magnetic sound cine camera which is operated at 24 frames per second, and a dynapulse. The latter provides bursts of x-ray of one to two millisecond duration which are synchronized with the opening of the camera shutter so that radiation is generated only when the camera shutter is open. This equipment makes possible cine recording at acceptable levels of x-ray exposure to the patient. The nine-inch image intensifier permits visualization

of the adult speech mechanism from the lips to the posterior pharyngeal wall and from nasopharynx to trachea. Lateral spot films are made to supplement the cine material.

Cinefilm analysis is done by use of a film editor, sound reader, regular motion picture projector, and a variable speed, reversible projector. The latter may be used with a tracing cabinet.⁵

Radiography is a tool that supplements other testing procedures and has both clinical and research application in the resolution of speech defects. Problems of esophageal voice and cleft palate speech are discussed.

Esophageal Speech

The laryngectomized person may learn to produce sounds for speech by voluntarily taking air into the esophagus and pushing it out as one would during eructation. Many writers^{1, 4, 11} have stated that constriction at the level of the cricopharyngeus, which is located at the junction of the pharynx and esophagus, serves as a pseudolarynx. As air is moved through this narrowed lumen (*Figure 1*), it is set into vibration, and sound is thus produced.

The site and morphology of the pseudolarynx in post-laryngectomized speakers is being investigated at the University of Kansas Medical Center by radiographic procedures. Spot and cinefluorographic films have shown constriction in the cricopharyngeal area simultaneous with voice in some subjects. However, in other subjects different sites of constriction have been observed. Thus the cricopharyngeus or other muscle fibers may be utilized in producing an esophageal voice. The extensiveness of the carcinoma and the resulting surgical procedure are probably the most important determinants of the postoperative morphology of the pharyngeal-esophageal tract. Other factors, however, such as infection or previous x-ray treatment may also affect the form and function of the pseudolarynx. Radiographic analysis of the pseudolarynx during phonation has shown great differences in the size and shape of the contracting fibers.

From the Department of Hearing and Speech and the Department of Radiology, University of Kansas Medical Center, Kansas City, Kansas. The study of post-laryngectomy speech is supported in part by a research grant from the Office of Vocational Rehabilitation, Department of Health, Education, and Welfare, Washington, D. C. The cleft palate research program is supported by the National Society for Crippled Children and Adults, Inc. Equipment for these and other studies has been provided by the organizations mentioned and by the National Institutes of Health and the Kansas Division of the American Cancer Society.

In Figure 2, subjects A and B show constriction for phonation of what seems to be the fibers of the cricopharyngeus. The vibrating tissues in subject C, however, appear to be higher than the level of the cricopharyngeus. Fibers of the inferior constrictor muscle may be involved. Subject D illustrates a long pseudolarynx which is probably composed of middle and inferior pharyngeal constrictor fibers.

Apparently laryngectomees with poorly defined or long areas of constriction (*Figure 2, subjects E and F*) have difficulty producing sound. However, some good speakers have a long constriction; therefore, this length is not the only factor in the production of good voice. For example, factors apart from the pseudolarynx such as senility, motivation, and hearing loss may be important.

The value of professional speech teaching in the rehabilitation of the laryngectomized person cannot be overemphasized. Such persons need careful evaluation and instruction if a new voice is to be developed. The International Association of Laryngectomees recently reported the results of a questionnaire mailed to more than 7,000 laryngectomized persons.⁶ Of the 4,800 who responded, 75 per cent had learned to speak again by using esophageal speech exclusively. Three out of four who were using post-laryngectomized speech, however, experienced difficulty in its use. The reasons for failure and difficulty were not given, but in some instances lack of professional teaching may be presumed to have contributed. A few laryngectomized speakers have become so-called "lay" teachers. Operating without professional education, supervision, or knowledge of the many variables involved in speech learning, these persons may sometimes be detrimental to their clients. At this institution a number of laryngectomized persons who are excellent speakers serve as highly valued volunteer assistants to the teaching staff. By relating their own speech learning experiences, they serve a morale-building function and help to orient the newcomer to the speech learning process. In a monthly meeting they work directly with the teachers in conducting lessons. The staff plans all instruction, however, and provides individual lessons to beginning speakers once or twice a week.

Cleft Palate Speech

Patients at the cleft palate clinic are evaluated by specialists in audiology, dentistry, otolaryngology, plastic surgery, radiology, and speech pathology. Utilization of radiography in the speech evaluation will be discussed here.

Speech evaluation of cleft palate clients involves assessment of both articulation and voice. In normal speech, the palate is elevated during production of all sounds except the nasalized m, n and ng (ing). When speech tests indicate that problems are present,

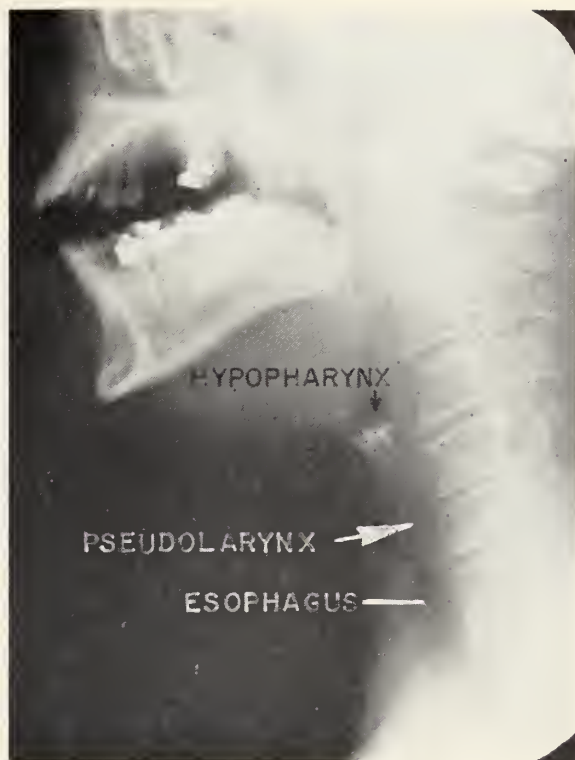


Figure 1. A radiograph of a laryngectomized person phonating the vowel "ah." The arrow indicates the constriction of muscle fibers which is called the pseudolarynx. In this subject the pseudolarynx extends from the level of the lower margin of the fourth cervical vertebra to the level of the lower margin of the sixth cervical vertebra.

determination must be made whether or not they are caused by lack of contact between the muscular palate and the posterior wall of the pharynx. Such a deficit may cause certain articulation problems and/or nasal voice quality. Palatopharyngeal approximation may be assessed cinefluorographically or by use of spot radiographs of the subject at rest and during sustained phonation.³ The vowel *ee* as in *feet* is especially useful for this purpose since it is the vowel most apt to be nasalized.¹⁵ During its production the tongue fills much of the anterior portion of the mouth thus directing the air against the area of palatopharyngeal closure. In phonation film, an adequate palate will usually appear in contact with the posterior pharyngeal wall. The extent of palatal movement from the neutral or rest position can be observed whether or not contact is made.

Additional tests of the palatopharyngeal sphincter should be made. Oral breath pressure as measured manometrically is used to reveal escape of air through the nasopharynx via air passages not recorded in the x-rays. If the client can produce as much oral breath pressure with the nares open as with them pinched

closed, the palatopharyngeal mechanism is probably adequate.¹⁶ Manometric measures should be used in conjunction with radiography in that spuriously high pressure ratios may be obtained by contraction of the nares or less obviously by creation of pressure in the front portion of the mouth even though palatopharyngeal closure is incomplete. Thus the radiographic and manometric procedures supplement one another.

Palatopharyngeal inadequacy is also indicated by certain patterns of articulatory error. Workers at the University of Iowa have constructed a pressure articulation test to evaluate speakers' ability to produce those sounds which best discriminate between adequate and inadequate palatopharyngeal closure.¹⁰ Intelligibility of the plosive sounds p and b is related to palatopharyngeal competency,¹⁸ and several studies have indicated that persons with cleft palate are more likely to misarticulate sibilants (s, z, etc.) than other sounds.^{2, 7, 14}

The clinical utility of radiography in palate evaluation is illustrated in Figure 3. The subject, a twelve-year-old boy with a congenitally short palate, demonstrated a compensatory forward movement of the

posterior wall of the pharynx. Cinefluorography indicated that each time his palate was elevated the posterior wall was moved forward to meet it. Nevertheless, closure was incomplete. This coordinated movement of palate and pharyngeal wall in speech is remarkable because it does not usually occur. When first seen, the boy made articulatory errors on the s, z, and l sounds, and his voice was moderately nasal. With speech lessons, which were conducted over a period of six months, he learned to produce the defective sounds correctly except for occasional distortion. Some nasality remained, however, and the client reported that he had to be continually careful to avoid gross speech error. Because of these continuing problems, a pharyngeal flap was performed. His speech and voice problems and his self-consciousness about speech were resolved without additional instruction.

Ratings of nasal voice quality are found to be related to measures of articulation deficiency.^{8, 19} Thus the more severe the articulation problems in cleft palate speakers, the greater is the likelihood that trained observers will report the presence of nasality. This finding suggests that reduction of articulation

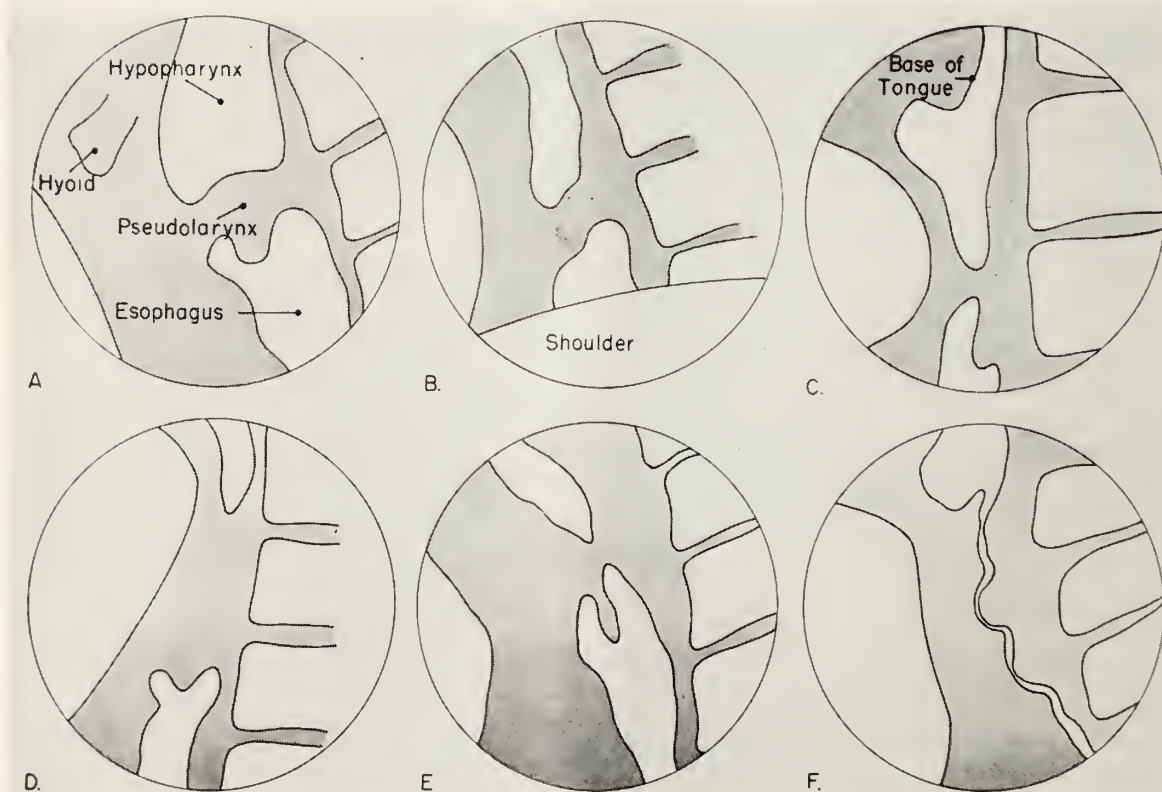


Figure 2. Cinefluorographic tracings illustrating differences in the morphology of the pseudolarynx during phonation in six different persons. Subjects A, B, and C were good speakers; D was a fair speaker, and subjects E and F spoke poorly. The latter subject had a pharyngectomy in addition to laryngectomy.



Figure 3. Radiographs of a twelve-year-old boy who had a congenitally short palate. On the left, the subject is shown during quiet breathing. On the right, the same subject is phonating the vowel *ee* as in *feet*. The large arrow indicates a forward movement of the posterior pharyngeal wall; however, as indicated by the small arrow, palatopharyngeal closure was not complete. Comparison of the two films shows that some palatal movement did occur. Note that during the phonation film the tongue fills much of the oral cavity.

deficiency is more fundamental than attention to nasal voice quality for cleft palate speakers. Successful repair of the palatopharyngeal mechanism, which may be accomplished surgically or prosthetically,² will facilitate development of articulation even though speech instruction frequently is needed to help the client learn to produce sounds correctly. Articulation errors in persons with adequately repaired mechanisms are amenable to remedial speech instruction whereas speech lessons in the presence of inadequate palatal structure are much less satisfactory. Successful repair will also result in reduction or elimination of nasal voice quality.

Summary

The use of radiography in the study of speech phenomena has been discussed with particular reference to the disorders of laryngectomy and cleft palate. Better understanding of the physiology of speech mechanisms and improved management of speech disorders can be accomplished when radiographic procedures are employed.

Acknowledgments: The authors wish to thank Mrs. JoAnn Clifford and Mr. Burton Johnson of the Department of Audiovisual Education for preparation of the illustrations.

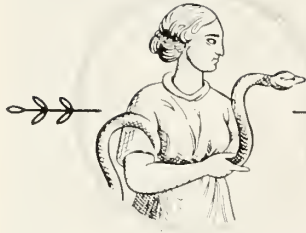
References

1. Berg, J. van den and Moolenaar-Bijl, A. J.: Cricopharyngeal Sphincter, Pitch, Intensity and Fluency in Esophageal Speech. *Practica Oto-Rhino-Laryngologica*, 21:298-315, 1959.
2. Byrne, M. C., Shelton, R. L., and Diedrich, W. M.: Articulatory Skill, Physical Management, and Classifications of Children with Cleft Palates. In preparation.
3. Calnan, J. S.: The Investigation of Nasality (Nasal Escape) in Speech. *Speech*, 21:59-74, 1957.
4. Damsté, P. H.: *Oesophageal Speech After Laryngectomy*. Boekdrukkerij Voorheen Gebroeders Hoitsema, Groningen, Holland, 1958, page 36.
5. Fletcher, S. G.: Analysis of Cinema Films in Diagnosis and Research. *J. of the Biological Photographic Association*, 26:29-33, 1958.
6. *I A L News*, Vol. 5, No. 5, November, 1960. Published by the International Association of Laryngectomees, c/o American Cancer Society, 521 W. 57th St., New York 19, New York.
7. McWilliams, B. J.: Articulation Problems of a Group of Cleft Palate Adults. *J. Speech Hearing Res.*, 1:68-74, 1958.
8. McWilliams, B. J.: Some Factors in the Intelligibility of Cleft-Palate Speech. *J. Speech Hearing Dis.*, 19:524-527, 1954.
9. Moll, K. L.: Cinefluorographic Techniques in Speech Research. *J. Speech Hearing Res.*, 3:227-241, 1960.
10. Morris, H. L., Spriestersbach, D. C., and Darley, F. L.: An Articulation Test for Assessing Competency of Velopharyngeal Closure. *J. Speech Hearing Res.*, (March, 1961). In press.
11. Robe, E. Y., Moore, P., Andrews, A. H., and Holinger, P. H.: A Study of the Role of Certain Factors in the Development of Speech After Laryngectomy. I Type of Operation; II Site of Pseudoglottis; III Coordination of Speech With Respiration. *Laryngoscope*, 66:173, 382, 481, 1956.

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Medical HISTORY

The Origin and Development of Autopsy

M. GENE REED, Wichita

In the gloomy wood and stone anatomical theatre the candle light glinted on the scalpel as three hundred pairs of eyes watched the blade dissect the corpse's cranial nerves. The air reeked of sweat, leather and putrefying flesh. High upon the gradients, jostled on all sides. . . .

(Padua, 1598)

Definition

IN MODERN TERMINOLOGY the words "autopsy" and "post mortem" are used interchangeably. The word "autopsy" is of Greek derivation and, translated loosely, means to see with one's own eyes. Applied to medicine, it means to dissect a dead body to determine what brought about death. "Post mortem," of course, means after death.

Obstacles in Development

For centuries there was great reluctance to open the bodies of the dead. It is said that even Hippocrates had a horror of contact with corpses, lest the spirit of the deceased haunt him. This great master felt that anatomy was indeed the foundation of medicine but believed that one could learn it from open wounds. The Roman law of Galen's time (162 A.D.) prevented the use of human cadavers for the study of anatomy. In India, opening the body after death was forbidden by religion. An old Hebrew tenet, "He that toucheth the dead body of any man shall be unclean for seven days" restrained the Jews from any post mortem procedure.

Whether from traditional, religious, legal, or aesthetic motives, these objections prevented any advancement in medical knowledge for centuries.

Editor's Note: M. Gene Reed is the wife of Dr. D. Cramer Reed of Wichita. Mrs. Reed wrote "The Origin and Development of Autopsy" as an English class thesis while working toward a degree.

Events Leading to First Autopsy

"Historically, the adoption of the practice of autopsy examination marks the division between primitive and modern medicine."

Human interiors were certainly inspected by the early Egyptians. During centuries of elaborate embalming procedures, the "taricheutes" eviscerated bodies and prepared them for the tomb. (According to Dr. Ibanez—fifty centuries and fifty million corpses!) In spite of this widespread practice, no knowledge of anatomy was transmitted by this civilization.

It is generally accepted that the Romans did no dissecting of the human body. Galen, the great compiler of ancient anatomy, dissected only apes and lower animals and based his conclusions of human anatomy on these findings.

In the 3rd century B.C., anatomical dissections were performed in Alexandria for the first time in medical history. This is particularly interesting in light of the classic Greek attitude toward dissections. While they venerated their dead far too much to allow such a procedure, they fostered it in a conquered realm. These operations opened the door to the conclusion that diseases originate in various organs, rather than in any mysterious humours. Unfortunately, the practice had a relatively short life and was eventually prohibited. There is an interim of one thousand years before it appears again.

Autopsies Begin

Spiro reports that "after the sixth century autopsies were occasionally performed in Byzantium to learn the cause of plagues." However, little was known about autopsies until the latter part of the thirteenth century. According to Dr. Krumbhaar, the first known medico-legal autopsy was performed by William of Saliceto (1201-1280) and his notes would indicate he had performed others.

In 1286 a physician of Cremona opened many bodies for the express purpose of discovering the cause of the pestilence which was sweeping the country. During the plague of 1347 the Pope ordered post-mortems to find the cause of that disease.

Dr. Major writes that the first coroner's inquest was reported in 1302. A certain nobleman was believed to have been poisoned, and the court ordered a post-mortem. Bartolome de Varignana, a professor of medicine at the Anatomical School of Bologna, performed the autopsy and verified the suspicions.

One of the most famous teachers and physicians of the University of Padua was Gentile de Foligno. He is credited with one of the earliest recorded autopsies in 1341, on which occasion he found a gall stone.

In 1410 Pietro di Argelata carried out an autopsy on Pope Alexander V who had died suddenly and mysteriously.

These and other examples show that the autopsy method was gaining precedence and power during the Middle Ages.

Milestones

In the latter part of the fifteenth century, the first book on pathological anatomy was written by Antonio Benivieni and it correlated symptoms of disease with findings at autopsy.

In Florence, another "first" was recorded in that same period. A post-mortem was performed for the sole purpose of discovering if the disease was of a hereditary character.

Vesalius, of Padua, provided one of the landmarks in medical history with his *Fabrica* in 1555. Medicine could progress no further without an accurate understanding of the structure of the body. The unorthodox *Fabrica* supplied this knowledge. The book aroused much controversy because it dislodged the medical halo of Galen.

"Vesalius' tragic end was hardly a just reward for his monumental contribution. He was dissecting, with full consent of the relatives, the body of a Spanish grandee, and as he cut into the heart, the muscle gave a feeble contraction . . . (which is not uncommon in those recently dead). This was reported to the court of the Inquisition, and Vesalius was sentenced to death. . . ." (Guttmacher)

The study of anatomy reached its zenith in Italy in the last part of the 16th century. There were thousands of students and beautiful anatomic theatres, particularly those at Padua and Bologna. The zeal soon spread to other European countries.

Much of the human dissection for the next one hundred fifty years was done in behalf of art by physicians and artists in collaboration, notably Michelangelo and Realdus Columbus, Da Vinci and Della Torr', and Von Calcar and Vesalius. Their work greatly advanced the study of human form and musculature, and, of course, anatomic illustration.

Very little is written on the progress of pathological anatomy for almost a century. Physicians had become engrossed with two new problems—syphilis and gun shot wounds.

That autopsies were still being carried on was indicated in an interesting report concerning William Harvey:

"In the year 1635, there lived in the county of Shropshire one yeoman called Thomas Parr, reputed to be 152 years old. When his fame reached the ears of the Lord Thomas Howard, Constable of England, he was brought to London on a litter. There he was wine and dined, and in short order died. King Charles I commanded his personal physician, one William Harvey, to perform an autopsy on the remains of Old Parr. This was duly done, and Dr. Harvey pronounced all the organs of the deceased to be healthy and sound. It was noted that there was not even calcification of the costal cartilages. As no anatomic cause of death could be found, Old Parr was adjudged to have died of a surfeit. . . ." (M.D., June, 1957)

In 1673 Van Leeuwenhoek, of Holland, developed the microscope. Although he observed a large number of bacteria, he did not relate them to disease. Another century was to pass before this momentous connection would be made.

Theophile Bonet, 1679, pursued the study which Benivieni had started two centuries earlier. In three large volumes he compiled a record of every known disease, with symptoms and pathological data—some 3,000 protocols.

The close of the 17th century saw pathology established as a science, and the next century witnessed constant advances in pathologic observing.

Often called the father of anatomy, Giovanni Morgagni contributed one of the imperishable books of medicine, *De Sedibus et Causis Morborum*, published in 1761. This important work contained a vast array of pathological findings, arranged and indexed, preceded by minute histories, symptoms, therapy and the relationship of the laboratory findings to the clinical picture.

The 19th century marks the beginning of modern medicine when autopsy reached its full development.

In 1801 Dupuytren wrote his treatise on pathological anatomy based on his observation of 1,000 autopsies.

Passionately devoted to his work was the pathologist, Bichat. It was said that he frequently slept at the morgue. During one winter he performed more than 600 post-mortems. His important work was *Anatomic Générale*, published in 1801. Previous writers had discussed individual organs. Bichat's description of the various systems of the body had a profound effect on clinical medicine. This amazing pathologist introduced the technique whereby tissues

obtained at autopsy could be preserved for future microscopic study.

Bichat influenced other French physicians, especially Corvisart, who used the autopsy to study the development of disease and made diagnoses from laboratory findings. He instituted routine autopsies at the College de France, and as Sigerist reports:

"Immense was the delight of the doctor and his pupils if this confirmed the diagnosis. Still more instructive, however, were instances in which discrepancies arose. They gave Corvisart an opportunity of showing, in masterly fashion, how and why he had erred and of explaining what was to be learned from these new observations." (Farber)

Undoubtedly, the most prolific pathologist was Carl Rokitsky of Vienna. During his 48 years at the Pathological Institute, "the number of autopsies performed by him or by assistants under his direction had reached the astounding number of 59,786! In addition . . . there were at least 25,000 medico-legal autopsies!" (Major) His autopsy techniques, though modified, are still followed today.

While Dr. Major considers Morgagni the father of pathology, Saphir and Farber feel that this role belongs to Virchow. In 1858 Virchow wrote one of the great books of medicine, *Cellular pathologie*, which presented a revolutionary concept—the fundamental role of the cell. It was his theory that sickness was a result of diseased cells. "Morgagni had pointed out the importance in pathology of an organ as the seat of disease; Bichat had called attention to the importance of tissues; now Virchow pointed out the fundamental role of the cell." (Major) This theory is today the basis of the cancer concept.

"Beginning with Vienna in 1806, chairs of pathologic anatomy were rapidly established in many countries, cooperation with hospital deadhouses established, autopsies abounded and medical teaching and progress prospered." (Krumhaar) The British and Irish were quick to follow the developments on the continent, and a wealth of information was gained from autopsy. Even more important, the ground work was laid for future revelations.

Although the microscope had been a potential ally for over a century, it remained for Pasteur and Koch "to excite new interest into Van Leeuwenhoek's 'little animals' and usher in an exciting period in modern medical history." (Major) As a result of their discoveries, bacteriology was to dominate the last quarter of the 19th century.

Robert Koch demonstrated Pasteur's germ theory in diseases and developed the laboratory techniques necessary to prove their etiology. Among the pathogenic agents discovered by Koch were: the anthrax and tubercle bacilli, cholera vibrio and ophthalmus bacillus.

The close of the 19th century saw other microorganisms identified and demonstrated. The microscope became a great boon to the science of autopsy.

Development in America

Although somewhat belated, the history of the autopsy in America followed a similar pattern and reflected teachings of the various homelands.

Benjamin Franklin was one of the instigators of the first medical school, now known as the University of Pennsylvania, which was founded in Philadelphia. The first class graduated in 1768. Major tells us that a member of the faculty, Philip Physick, was kept busy with post-mortem studies of victims of the yellow fever epidemic of 1793.

Even earlier autopsies are reported in the New World. Hektoen writes of the autopsy of the double human monster in San Domingo in 1533. This operation was authorized by the church "to determine whether one or two souls should be baptized . . . each would have been a beautiful woman."

In 1605 and 1606 members of Champlain's group on Ste. Croix Island and at Port Royal were victims of scurvy. During the second year twelve of the forty-five died.

Our surgeon, named Des Champs, of Honfleur, a man skilled in his profession, opened some of the bodies to see if he could discover the cause of this illness better than those who had tried the previous year. He found the same parts of the body affected as in those opened on Ste. Croix Island and could discover no remedy for curing them, anymore than had the others. (Kektoen)

These studies were truly amazing when we consider that in Europe at the corresponding period, post-mortem examination was in its earliest stages.

The first medico-legal autopsy in the colonies was done in 1691 on the body of Governor Slaughter of New York. Only four times previously had other autopsies been performed.

Although medicine was not well-developed in America, two works on pathologic anatomy were written here in the early 1800's. William Edmonds Herner wrote a treatise on pathology in 1829. Ten years later Samuel D. Gross, of Philadelphia, published a textbook of pathology, "the first exhaustive treatise on pathological anatomy in the English language." (Major)

By the middle of the 19th century America was producing its own medical scientists and, with their contributions, the prestige of American medicine was becoming established. In just a century this country would replace Vienna as the mecca of medical science.

In 1905 one of the most fascinating autopsies in history was performed. It is of especial interest because it was done 113 years after death had occurred.

John Paul Jones, of "Don't give up the ship" fame, had been buried in France. When the United States ambassador learned that the little cemetery was to be uncovered in a slum-clearance project, he tried to find the remains of the naval hero.

"Three weeks of exploration disclosed five lead coffins, one of which was believed to contain his remains. By a meticulous process of elimination, a body fitting that of Jones in all details was found. The body was in remarkably good condition. Although there was no evidence that it had been embalmed, there was a strong odor of alcohol about it. . . . Two anthropologists and historians were responsible for the decision that the autopsy was performed on the right body. The correlation of the known clinical history with the findings at autopsy enabled the examiners to conclude that the body was that of John Paul Jones." (*Physician's Bulletin*, 1958)

Current Status and Role

Today there are few restrictions on autopsies. The general rule is that the next of kin has the right of burial, and, accordingly, the right to grant or withhold an autopsy.

At present there are two schools of thought regarding the current and future roles of autopsy. In 1956 Dr. Isaac Starr wrote a controversial article on the values of autopsy today. He declared that post-mortems had become routine and burdensome; that the emphasis on pathology denied the existence of mental and emotional disorders; that no therapeutic advances had come from that school; and that preventive medicine was ignored.

The opposing school was righteously indignant and, led by the eminent Dr. Cannon, lashed out immediately and vigorously. "The autopsy is becoming more important today mainly because we are in such an unusually active period of chemical, hormonal and isotopic therapy; and the final evaluation of most of these newer forms of treatment must come from post-mortem findings."

It may be that the post-mortem has already made its chief contributions to medical science and, indeed, that it has become routine. But just as from other procedures which have become routine, such as a complete blood count, other observations and discoveries can be made. For only by such a procedure can we measure the effectiveness of new advances in the treatment of cancer, leukemia, collagen diseases and other unsolved mysteries. Only from such procedures can we furnish adequate explanations for unexpected deaths. So long as diseases alter the various structures of the body, the autopsy will remain a valuable adjunct to medical science.

References

1. Adler, Elizabeth Thompson: "The Operation No One Talks About," *Today's Health*, 37:32-34, Feb. 1959.
2. Cannon, Paul R., M.D.: *Journal of the American Medical Association*:161, June 23, 1956.
3. Ewing, Margaret Blake: "Autopsy," *Colliers*, July 23, 1949, vol. 134:4.
4. "Egypt," *MD*, July 1959.
5. "The Epic of Medicine II: Archaic Medicine," *MD* vol. 3:7, July 1959.
6. "The Epic of Medicine III: Greek Medicine," *MD* vol. 3:9, Sept. 1959.
7. "The Epic of Medicine IV: Roman Medicine," *MD* vol. 3:11, Nov. 1959.
8. Farber, Sidney, M.D.: *The Post-mortem Examination*, Charles C Thomas, Springfield, Illinois, 1937, pp. 201.
9. Guttmacher, Alan F., M.D.: "Bootlegging Bodies," *Bulletin of the Society of the Medical History of Chicago*, January 1935, vol. IV.
10. "William Harvey," *MD*, Vol. 1:6, June 1957.
11. Hektoen, L.: "Early Post-mortem Examinations by Europeans in America," *JAMA*, 86:8, Feb. 1926.
12. Ibanez, Felix Martin, M.D.: *Centaur*, MD Publications, Inc., New York, N. Y., 1958, pp. 670.
13. Kottler, Aaron, M.D.: "The Jewish Attitude on Autopsy," *New York State Journal of Medicine* 57:9, May 1, 1957.
14. Krumbhaar, E. B., M.D.: "History of the Autopsy and Its Relation to the Development of Modern Medicine," *Hospitals* 12, April 1938.
15. Major, Ralph H., M.D.: *A History of Medicine*, Springfield, Ill. Charles C Thomas 1954, 1155 p.
16. Saphir, Otto, M.D.: *Autopsy Diagnosis and Teaching*, New York, N. Y., Paul B. Hoeber, Inc., Medical Book Dept. of Harper and Brothers, 4th Ed. 1958, 506 pp.
17. Spiro, Robert K., M.D.: "The Heritage of the Autopsy," *Journal of the Medical Society of New Jersey*, 55:3, March 1958.
18. Starr, Isaac, M.D.: "Potential Values of the Autopsy Today," *Journal of the American Medical Association*:160, March 31, 1956.
19. "The Strange Autopsy of John Paul Jones," *PB* XXIII:1, January 1, 1958.
20. Stump, Albert and Emswiler, Byron: "The Law Pertaining to Autopsies," *The Journal of the Indiana State Medical Association*, 49:7, July, 1956.

Speech

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12. Scheier, Max: Die Bedeutung des Roentgenvergleichens für die Physiologie der Sprach und der Stimme, *Archiv. Laryngologie und Rhinologie*, 22:175-208, 1909.
13. Smith, C. C., Fletcher, S. G., Shelton, R. L., and Bosma, J. F.: Utilization of Roentgenology, in the Study of Speech Mechanisms. *Am. J. Roentgenology, Radium, Therapy and Nuclear Medicine*, 84:213-219, 1960.
14. Priestersbach, D. C., Darley, F. L., and Rouse, V.: Articulation of a Group of Children with Cleft Lips and Palates. *J. Speech Hearing Dis.*, 21:436-445, 1956.
15. Priestersbach, D. C. and Powers, G. R.: Nasality in Isolated Vowels and Connected Speech of Cleft Palate Speakers. *J. Speech Hearing Res.*, 2:40-45, 1959.
16. Priestersbach, D. C. and Powers, G. R.: Articulation Skills, Velopharyngeal Closure, and Oral Breath Pressure of Children With Cleft Palates. *J. Speech Hearing Res.*, 2:318-325, 1959.
17. Subtelny, J. D., Pruzansky, S., and Subtelny, J.: The Application of Roentgenography in the Study of Speech. Chapter II, *Manual of Phonetics*, edited by L. Kaiser. Amsterdam (The Netherlands): North-Holland Publishing Co., 1957.
18. Subtelny, J. and Subtelny, J. D.: Intelligibility and Associated Physiological Factors of Cleft Palate Speakers, *J. Speech Hearing Res.*, 2:353-360, 1959.
19. Van Hattum, R. J.: Articulation and Nasality in Cleft Palate Speakers, *J. Speech Hearing Res.*, 1:383-387, 1958.



Headaches, Secondary Amenorrhea and Progressive Failure of Vision

Case Presentation

A 29-YEAR-OLD WHITE WOMAN was admitted for the first time to KUMC complaining of failure of vision of about two years' duration. Two months before admission she noted the sudden and rapid deterioration of vision in both eyes, particularly the left one, and she could no longer read a newspaper.

She had had two normal pregnancies, the first one at age 17 and the second at 25. Following her second pregnancy she had been amenorrheic until the present admission. When she was 16 years old she began to have headaches which were diagnosed as migraine, and when she was 23 she was seen in the medicine and neurology outpatient clinics where the diagnosis of migraine was confirmed. The patient said that nervousness seemed to precipitate her headaches, and a typical migraine attack would begin with scintillating scotomata, either straight ahead or in the upper visual fields, followed by a large, central, "clear" scotoma. Afterward she developed a "dreamy" state in which she was conscious and could walk, talk, hear and carry on a conversation but in which a peculiar quality of familiarity existed (*deja vu* phenomenon). She had a tingling sensation in her hands, usually in the left hand. She had nausea and frontal or unilateral headache. With the inception of her second pregnancy she had had no further episodes of migraine until the night before her admission.

Her mother had had severe headaches, but otherwise her family history was non-contributory.

The patient was a slightly obese, white woman who was alert and active, and who seemed to be in no apparent distress. Her blood pressure was 117/70;

her pulse was 80 and regular. A right carotid systolic bruit was heard in the neck. All of the deep tendon reflexes were hypoactive, and the visual acuity was 20/40 in the right eye and less than 20/100 in the left eye. There was a minor superior temporal quadrant defect in the right eye and a nearly complete temporal hemianopia, probably involving the macula, in the left eye. She was righthanded. Otherwise the neurological examination was "negative."

A voided urine specimen showed a heavy trace of albumin and 25 to 30 pus cells per high power field. The hemoglobin was 11.8 gm. per cent. A white count was 7,550 with 53 per cent polymorphonuclear neutrophils, 39 per cent lymphocytes, 1 per cent eosinophiles and 7 per cent monocytes. The mean corpuscular hemoglobin concentration was 31.4. The serology was non-reactive. The serum sodium was 143 mEq/L; potassium, 3.7 mEq; chloride, 106 mEq; calcium, 2.7 mEq; bicarbonate, 28.0 mEq; and phosphorus, 5.2 mEq. The fasting blood sugar was 72 mg. per cent with hourly glucose tolerance values of 72, 106, 59 and 63 mg. per cent. There was no glycosuria. At 8:00 a.m. the circulating eosinophile count was 150 per cubic millimeter. Three and one-half hours after she received 20 units of ACTH intramuscularly, the eosinophile count was 88 per cubic millimeter. The urinary 17-ketosteroids were 9 mg. and 17-hydroxysteroids were 9.1 mg. per 24 hours. An electroencephalogram was normal. The I-131 thyroidal uptake was 19 per cent in 24 hours.

An operation was performed on the eighth hospital day. The systolic blood pressure did not drop below 110 mm. of mercury during the entire 4-hour procedure. She was given 500 ml. of bank blood. Immediately upon recovery from anesthesia she had a profound left hemiplegia with a left Babinski sign. The pupils were small and equal and reacted to light. She would squeeze her right hand on command, but she would not speak. Three and one-half hours after

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completion of the operative procedure a lumbar puncture was performed because of continued left hemiplegia. The spinal fluid was moderately bloody with a pressure of 300 mm. Four hours after operation she would hold up two or three fingers of her right hand as directed, but she would not open her eyes or speak. Ten hours after operation the left hemiplegia was still present, and she no longer responded to commands. Her right hand and foot moved aimlessly. Her blood pressure remained stable throughout the postoperative period. The urinary output was satisfactory. Twelve hours after operation the right pupil appeared to be larger than the left. The respiration became periodic, and a right Babinski sign was present. The surgical wound was reopened, and further surgery was done. She remained comatose and gradually developed hypotension. Her pupils became dilated and fixed. Twenty-three hours after completion of the initial operation all cardiac and respiratory actions ceased.

Dr. Mahlon Delp (moderator): Are there any questions?

Josephine Anderson (fourth year medical student):* Will you describe her headaches in more detail?

Dr. Keith Whitaker (resident in neurosurgery):** There seemed to always be a typical train of events associated with her headaches. They were not always unilateral, and I believe that they were more frequently bi-frontal.

Miss Anderson: What kind of attack did she have just before admission?

Dr. Whitaker: She had a typical migraine attack which was exactly the same as those she had experienced up to the period five years before her admission.

Frank Chesky (student): Did she have any stiffness of her neck?

Dr. Whitaker: No, she did not.

Ivan Carper (student): Had she always been obese, or did she develop obesity after the onset of her symptoms?

Dr. Whitaker: She was not markedly obese; she was just an average plump young housewife.

Herbert Curran (student): Did she cease to lactate after the birth of her second child?

Dr. Whitaker: Her breasts remained large after the last delivery and up to the present time, and she had had intermittent lactation during the past several years. I do not believe she nursed her last baby.

Mr. Carper: Did she have a history of polyuria?

Dr. Delp: She had had polyuria and polydipsia of one month's duration about four months before she was first seen here.

Hugh Cox (student): What was the specific gravity of the urine on admission?

Dr. Delp: It was 1.016.

Melvin Cheatham (student): Was there any acromegaly?

Dr. Whitaker: No, there was not.

Mr. Curran: Was a catheter specimen obtained on the first urine?

Dr. Whitaker: No.

Mr. Chesky: Was a blood urea nitrogen value obtained?

Dr. Whitaker: No.

Mr. Cheatham: Were any other calcium or phosphate levels reported?

Dr. Whitaker: No, they were not.

Mr. Carper: Did the patient make any attempt to speak following surgery?

Dr. Whitaker: I do not know whether she attempted to talk or not; no one ever heard her say a word.

Mr. Curran: Will you describe the eyegrounds on admission?

Dr. Whitaker: They were normal, although there was some question about the possibility of temporal pallor.

Dr. Robert Hudson (internist): Before her admission did the transient weakness or tingling of her hands ever occur after the headache formed?

Dr. Delp: The tingling sensation occurred with the onset of the headaches or as a premonitory sign of their onset.

Dr. Robert Manning (internist): Was there any evidence of metastatic calcification or cataracts?

Dr. Whitaker: No.

Dr. Manning: Were any of her symptoms suggestive of tetany?

Dr. Whitaker: No.

Dr. Manning: Did she complain of numbness around her mouth?

Dr. Whitaker: No.

Dr. Delp: May we have the x-rays now, please, Mr. Cheatham?

X-rays

Mr. Cheatham: On admission a PA view of the skull shows no bony abnormalities of the cranial vault. The frontal sinuses appear to be clear, and there is no calcification of the pineal body. The most significant finding in the lateral view is the tremendous enlargement of the sella turcica which measured about 14 x 21 mm. on the regular films (*Figure 1*). The posterior clinoid process is poorly defined.

* Although a medical student at the time of this conference in April, 1959, she, like the others referred to as students, received the M.D. degree in June, 1959.

** Although a resident in neurosurgery at the time of this conference in April, 1959, he is now captain, Medical Corps, Lackland Air Force Base.



Figure 1. Lateral view of skull taken on admission.

A carotid arteriogram done two days before surgery shows normal filling of the internal carotid artery to the carotid siphon on the right side. The anterior cerebral artery does not fill well. Of most significance is the lateral shift of the carotid siphon away from the midline (*Figure 2*). The lateral view shows essentially the same findings with normal filling of the carotid siphon. The middle cerebral artery fills well throughout its distribution. Again, the filling of the anterior cerebral artery is probably not normal.

Another internal carotid arteriogram done four hours postoperatively shows the bone flap turned for a right fronto-parietal craniotomy. On the left side there is filling of the internal carotid artery, some filling of the middle cerebral distribution, and the anterior cerebral artery appears to be well outlined. There is shifting toward the left possibly indicating increased pressure on the right. There is partial filling of the internal carotid artery on the right, but there is no filling of the rest of the vascular distribution. A thrombosis or pressure may have been exerted on the artery, or, possibly, a spasm may have caused the artery not to fill any farther.

A lateral film four hours after surgery shows filling of the right internal carotid artery and into the right external carotid. Most of the vessels are filling from the external carotid. The internal carotid narrows progressively until there is no more filling of the middle anterior distribution.

Dr. Delp: I believe that the patient's death was not anticipated. Mr. Chesky, will you give us your primary diagnosis and your opinion as to the immediate cause of death?

Differential Diagnosis

Mr. Chesky: This 29-year-old woman was admitted here with the complaint of failure of vision over a period of two years. She had a history of migraine headaches. She had had amenorrhea for four years following the delivery of her second child. Because of the progressive failure of vision and certain questionable laboratory findings, my initial diagnosis is an expanding lesion either in the sella or suprasella area of the cranium.

Sarcoid granuloma, gumma, amyloidosis and tuberculosis of the pituitary can be dismissed because of the lack of history and physical findings and because of the negative laboratory values.

Metastatic carcinoma of the pituitary is a possible diagnosis, but it is a rare disease and can be ruled out because of the duration of the patient's illness, and because there was no evidence of primary carcinoma.

Meningioma of the tuberculum sellae initially can cause visual manifestations and pressure atrophy of the pituitary, but I shall dismiss it as a primary diagnosis because of the negative x-ray findings.

Thirty-five per cent of intracranial aneurysms occur between the ages of 21 to 40. They are seen specifically in the anterior communicating artery, the anterior cerebral and the internal carotids, and remain silent in the vast majority of cases. Those which are not ruptured may cause symptoms of visual field



Figure 2. Carotid arteriogram taken two days before surgery.

loss or of extraocular muscle paralysis, neither of which was present in this patient.

Eosinophilic granulomas cannot be completely dismissed, although there was no evidence of acromegaly, a condition which is usually present in that disease.

My final diagnosis is chromophobe adenoma. This is a slow-growing tumor and the most frequent of pituitary adenomas. Its early manifestation is usually gonadotrophic failure which may be manifested by secondary amenorrhea. Visual defects occur in the bitemporal fields as the tumor expands. In our case a glucose tolerance curve was low, and there were borderline values in the Thorn test and the I-131 uptake study, all of which is compatible with chromophobe adenoma. The thyroid and adrenal functions are often not eliminated until several years after the onset of the disease, and that, together with the x-ray findings of ballooning of the sella turcica, substantiates the diagnosis. Twenty per cent of chromophobe adenomas are cystic. Hemorrhage into the cyst could account for the sudden diminution of vision two months before admission. In regard to the correlation between the amenorrhea and the second delivery: chromophobe adenomas can grow during pregnancy. It is my assumption that the patient underwent surgery to have a hypophysectomy. The left hemiplegia may have been the result of vascular spasm or thrombosis during the operation, and there may have been diffuse infarction of the cerebral hemisphere. The edema manifested itself by the progression of diminution of the sensorium, dysesthesia, and aimless movements of the right arm and leg. Pressure on the brain stem may possibly have been due to herniation over the tentorium with resultant pupillary signs, respiratory involvement, hypertension and death.

Clinical Discussion

Dr. Delp: Thank you, Mr. Chesky. Four months before admission the patient had had polyuria for about one month, but she had no polyuria when she was seen here as an outpatient or three to four weeks later when she returned as an inpatient. How do you explain that, Mr. Cox?

Mr. Cox: A hemorrhage into the tumor with pressure on the posterior hypophysis could cause a relative diuresis by obstruction of the antidiuretic hormone release. Although it may have been only temporary as a transient episode of diabetes, I believe that an acute expansion of the pituitary gland would be the most likely cause.

Dr. Delp: What is your explanation, Miss Anderson?

Miss Anderson: Hemorrhage into a cyst could have increased the pressure in the area of the hypothalamus, and could give rise to a transitory dia-

betes insipidus. Also at that time there was retrogression of the eye signs.

Dr. Delp: It was reported that the patient had intermittent lactation. Her finger size increased because her rings became too tight, and she had to wear a larger glove. How do you interpret that, Mr. Carper?

Mr. Carper: An eosinophilic adenoma could cause acromegaly which would be the only evidence of such a process. Such a tumor could be histologically diagnosed as a chromophobe one.

Dr. Delp: Mr. Cox?

Mr. Cox: Fifteen cases were reported in which there was evidence of acromegalic features without frank acromegaly in lesions of the pituitary. Three of the cases were diagnosed as chromophobe adenomas secreting lactogenic hormones.

Dr. Delp: It was reported that the patient had alterations in the distribution of hair. Do you attach any significance to that, Miss Anderson?

Miss Anderson: There would not necessarily be any alterations as a result of the chromophobe adenoma. A functioning tumor of the pituitary gland such as an eosinophilic adenoma could cause hirsutism. She had no loss of hair which would be associated with hypo-adrenalism, but that could have occurred later from the pressure of the chromophobe adenoma of the pituitary.

Dr. Delp: Assuming that the calcium value of 2.7 mEq and the phosphorus value of 5.2 mEq are correct, how do you explain them, Mr. Cox?

Mr. Cox: I assume that they are incorrect. If this is a true calcium value, there probably would have been some evidence of tetany, but there was none. Levels of calcium content below 3.75 mEq usually lead to tetany. In my opinion these values are completely reversed, and, if this is the case, both of the levels are in the normal range as would be expected in this case.

Dr. Delp: Miss Anderson, do you believe that the phosphorus level is compatible with the diagnosis?

Miss Anderson: Although the phosphorus value goes up in eosinophilic granulomas, occasionally there is an associated hyperparathyroidism in which the phosphorus is low.

Dr. Delp: Mr. Carper?

Mr. Carper: There is no evidence of control of the parathyroid glands by the pituitary, so the lesion could not have been caused by the lack of pituitary function.

Dr. Delp: What do you believe was the cause of the patient's death, Mr. Cox?

Mr. Cox: Thrombosis, either primary or secondary to spasm, could have led to increased edema and progression of the other signs and symptoms. I also believe that she had an infarct on that side.

Dr. Delp: Do you agree, Mr. Carper?

Mr. Carper: I believe that a thrombus was present. One would not, however, expect to see atherosclerosis in a patient of that age, so the cause of the thrombus is an interesting question. I believe the history of migraine and spasm is significant.

Dr. Delp: Mr. Cutran?

Mr. Curran: Progressive massive edema was probably developing on the right side and involving the left side during the first eight or ten hours while her sensorium was still fairly clear. I believe that there was brain stem involvement with pressure against the tentorium and respiratory arrest.

Dr. Delp: Assuming that this was spasm, what is your explanation for it other than the migraine, Mr. Cheatham?

Mr. Cheatham: Blood in the subarachnoid space or the touching or manipulation of any of these vessels could cause spasm which could be transient or could lead to frank infarction of the brain.

Dr. Delp: Dr. Bolinger, what is your explanation for these disturbing calcium and phosphorus values?

Dr. Robert Bolinger (internist): I believe that an error may have been made somewhere.

Dr. Delp: Is it true that the phosphorus is sometimes elevated?

Dr. Bolinger: The phosphorus is frequently elevated in eosinophilic adenoma but not in eosinophilic granuloma of the pituitary. The fact that the calcium is usually not altered is difficult to explain. If the calcium were altered tetany would be present.

Dr. Delp: Do you believe that the patient had acromegaly?

Dr. Bolinger: She was specifically asked questions concerning the signs of early acromegaly. Apparently she had been lactating intermittently. She stated that her shoes had gone up two sizes, and her glove size had increased. Those signs were interpreted as indicating acromegaly. The lactation and amenorrhea could be explained on the basis of a hypothalamic disturbance, but that would not explain the changes in her hands and feet.

Dr. Delp: May we have your comments, Dr. Williamson?

Dr. William P. Williamson (surgeon): Pre-operatively there was little doubt that the patient had a pituitary tumor because of the failure of vision with bi-temporal field cuts. It was my opinion that she had early optic atrophy. She did not appear to be acromegalic. We believed that she had a chromophobe adenoma. The peculiar history of unusually severe migraine headaches with the scotomas was of interest. An arteriogram was done pre-operatively for two reasons: first, to verify the presence of a mass extending from the sella turcica; and, secondly, to determine whether there was a temporal lobe tumor. The arterio-

gram showed no shift or disturbance of the middle cerebral artery, so it was assumed that that ruled out temporal lobe tumor and intracranial aneurysms and verified supracellar tumor. Without any unusual concern about the risk we proceeded with the craniotomy. The tumor proved to be cystic which accounted for the sudden loss of vision. There was a cyst in the tumor and a hemorrhage in the cyst. On exposure of the tumor the chiasm was markedly compressed, and the optic nerves were stretched around it. The cyst was bluish and fluctuant. A needle was placed in the tumor, and fluid old blood was aspirated, verifying an old sudden hemorrhage which caused the sudden loss of vision. By simple aspiration the tumor was totally collapsed which relieved the chiasm of all of its compression. The reason for the operation was to save her vision. There was no trauma to the carotid artery, and there was no prolonged traction or difficulty with hemostasis. The capsule was opened and inspected down into the sella turcica which was essentially empty. The tumor was mostly cystic, and it was difficult to find enough tumor to obtain a good biopsy specimen. It is significant that, mechanically, there was no trauma or touching of the carotid arteries. The operation proceeded smoothly and easily.

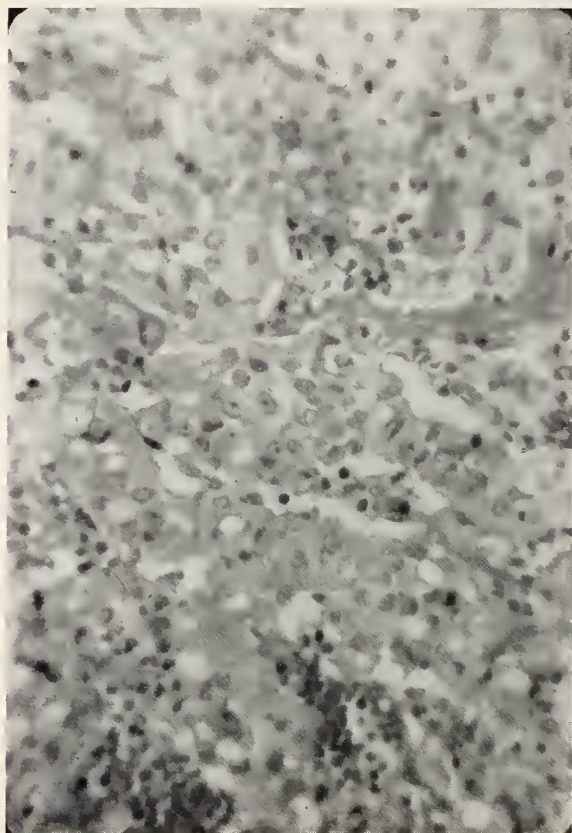


Figure 3. Characteristic chromophobe cells in the pituitary tumor. H. and E.

We were, therefore, shocked and surprised when profound left hemiplegia developed after the operation. The neurosurgeon's immediate problem was whether there was bleeding intracranially from a subdural or extradural hemorrhage. During the first few hours there was hope that the hemiparesis would clear simply as the patient came out of the anesthesia. A spinal tap was done, and her pressure was only 300 mm. with the expected amount of blood which did not appear to be massive intracranial bleeding.

A carotid arteriogram was interpreted as profound spasm of the vessels. The artery tapered off to a small, thin thread and stopped. With the needle in the carotid artery intra-arterial papaverine was injected, but without results. She was given carbon dioxide and oxygen, and the stellate ganglion was blocked, but none of these procedures were effective; the neurological picture did not change. When her pupils became fixed and dilated it was obvious that she was going to die with infarction of the brain and compression of the brain stem.

As a heroic gesture she was returned to surgery for a right frontal lobectomy which can be done without increasing neurological deficit. On opening the dura it was remarkable to see that the arteries of the brain had no blood in them whatsoever; they were completely empty. The veins were black, and the right hemisphere had obviously been infarcted. Knowing that she was going to die the frontal lobe was cut off, and the wound was closed. An interesting observation here is that the patient had had serious severe migraine headaches until she developed a pituitary tumor, whereupon the migraine headaches stopped. As soon as the surgeons touched the pituitary tumor, her arteries went into spasm so severe that they became thrombosed and the patient died.

At that time we had no explanation for that phenomenon, and unless one is forthcoming now, we still have none. I have never seen such an exceedingly rare complication of surgery in the region of the pituitary, and I have never read about it in the experience of anyone else. Many more traumatic operations for craniopharyngeomas and for aneurysms around the Circle of Willis have been performed without causing vasospasm leading to thrombosis.

Dr. Delp: Thank you, Dr. Williamson. May we have your comments now, Dr. Hudson?

Dr. Hudson: This is one of the most intriguing histories that I have ever heard. The extravasation of blood into the subarachnoid is an inconstant cause of vasospasm, and cannot be pinned down definitely to specific situations such as this. Whether or not chemicals can cause vasospasm of such a degree is unknown, but recent observations show that many migraine patients gain 10 to 20 pounds of fluid just before the onset of their headaches, and that, in turn,

could explain some of the patient's difficulty with her gloves and shoes. More important from that standpoint, however, is that the fluid accumulation is often primarily localized in the peri-orbital region. Studies of the fluid show that, chemically, it has the characteristics of a polypeptide. When injected into the skin it produces the typical histamine type of response. If a sufficient amount of it is given subcutaneously, even in a normal individual, it will produce shock or lowered blood pressure, all of which has led to the belief that the chemical resembles the old peptone type of antiphyllactic substance. An interesting conjecture is that the fluid in the pituitary cyst might have been extravasated (as would normally occur as it was needled), and might have tipped off severe vasospasm in an individual who had inherited tendencies to cerebral vasospasm, as I believe that our patient did.

Dr. Delp: Thank you. May we have your report now, please, Dr. Smith?

Pathological Report

Dr. O. Dale Smith (pathologist):* The patient was a well nourished woman who weighed 160 pounds and was 5 feet and 6 inches tall. She had normal axillary and pubic hair. The surgical defects previously mentioned were present. There was some peri-orbital edema on the right side, and there was some injection of the scleral vessels on the right. The heart, kidneys and liver were not noteworthy. There were few focal areas of atelectasis and some compensatory emphysema in the lung, but these were of minor importance.

The most important changes were in the hypophysis. The posterior lobe was not identified, either grossly or microscopically, and the pituitary was converted into a thin cystic structure about 3 cm. in diameter which filled the expanded sella.

In the normal pituitary a horizontal section clearly shows a tendency for the acidophils to form in the lateral portions of the anterior lobe, and the basophiles tended to form a mantle around the periphery of the acidophiles. These features were well seen in material stained with periodic acid Schiff and orange dyes which clearly delineated these cell types.

The pituitary tumor when stained by the PAS method failed to show any of its cells which accept these differentiating dyes, and it was then quite characteristic of a chromophobe adenoma (Figure 3). Many areas of the pituitary showed, in addition to hemorrhage and gelfoam, tissue which was cytologically differentiated into the usual acidophiles and basophiles.

* Although a pathologist at the University of Kansas Medical Center at the time of this conference in April, 1959, he is, at the present time, pathologist at the Baptist Memorial Hospital, Kansas City, Missouri.

A survey of the target organs of the pituitary is of interest. The ovaries were symmetric, decreased in size, and had many follicular cysts. They were lined by granulosa, theca interna, and theca externa blending into ovarian stroma. There were no corpora lutea, and there were only a few corpora albicantia. There was no evidence that the patient had ovulated recently or in the distant past. These ovarian changes should not be confused with the polycystic ovaries of Stein-Levinthal which are large. The endometrium was atrophic correlating well with the amenorrhea which she had had for four years. It seems reasonable to conclude that these findings would implicate a failure of the gonadotropins.

There was an overall increase in fibrous tissue and in the production of distinct lobulation. The stroma contained focal collections of lymphocytes which produced lymphoid follicles. The thyroid acini were fairly well filled with colloid, and it must be concluded that this was probably a fairly well-functioning gland. Apparently it had in the past experienced some hyperplasia with irregular involution.

The adrenals appeared normal. Fat stains showed the zona glomerulosa, an area not stimulated by the adeno-hypophysis, to be depleted of fat. The zona

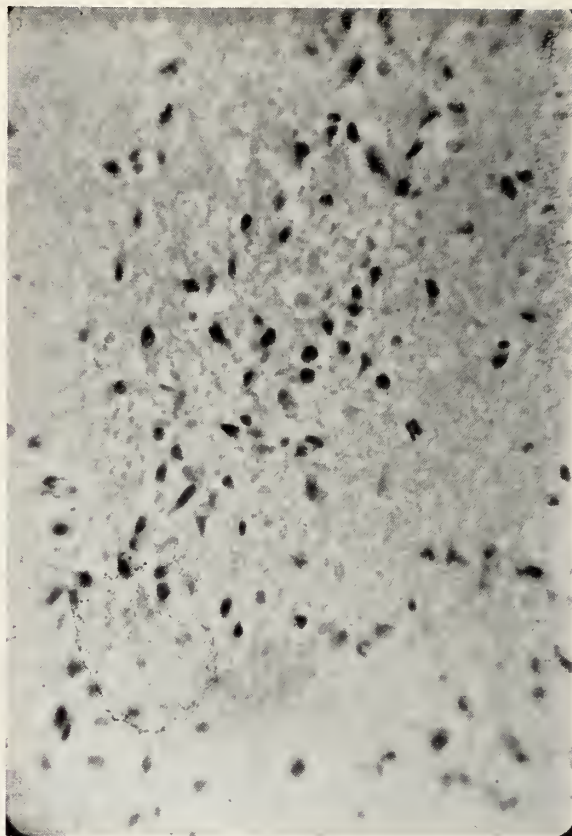


Figure 5. Marked chromatolysis and pyknosis of neurons in Ammon's Horn in right cerebral hemisphere.



Figure 4. Recent infarction of nervous tissue, petechial hemorrhage and vascular congestion in the right cerebral hemisphere.

fasciculata and the zona reticularis seemed to be normal. It is interesting to speculate that the hypophyseal changes lead to failure of gonadotropic but not thyrotropic or adrenotropic hormones.

The lumen of the right internal carotid artery was filled with fibrin, red cells and masses of platelets. There was some early reaction in the vessel wall which showed changes of recent thrombosis. The right cerebrum showed the diffuse changes which occurred with the occlusion of the right internal carotid artery. The entire right cerebral hemisphere was infarcted (Figure 4) which probably accounted for her terminal event.

The neurons in Ammon's Horn on the right (Figure 5) showed marked chromatolysis and pyknosis, but because the nuclei were still present we must accept this as being recent. There was no evidence of gliosis or fibrosis. A comparable area from the Hippocampus on the left was normal (Figure 6).

Dr. Delp: Are there any questions of Dr. Smith?

Mr. Curran: To what part of the internal carotid were you referring?

Dr. Smith: It was intracranially as it exists from the base of the skull.

Dr. Hudson: Assuming that there was no thrombus at the end of surgery, how long do you believe

it would have taken for occlusion to occur from thrombus formation?

Dr. Smith: Neutrophils were beginning to accumulate around the vessel, and I would judge that it would take several hours after the initial thrombosis.

Dr. Delp: The patient lived for 24 hours after surgery, and that is a long time.

Dr. Hudson: She was immediately hemiplegic. She responded within an hour from the time the wound was closed, and the hemiplegia was profound at that time.

Dr. Smith: I believe the changes in the vessels were compatible with thrombosis within the 24 hours.

Dr. Delp: Dr. Steegmann, you saw the patient in 1952 and subsequently in consultation; may we have your comments about her migraine?

Dr. A. T. Steegmann (neurologist): There was no question in my mind that she had migraine. The old x-rays showed the sella to be completely normal. There was a family history of migraine, and, apparently, her second disease was acquired later.

Dr. Delp: This patient had the most classical history of migraine I have ever heard or seen. She had absolutely every manifestation, but the headaches stopped at about the time the pituitary tumor de-

veloped. I do not know whether that is a suggestion or a clue as to the etiology of migraine.

The phosphorus values were stressed here because, as many of you know, the laboratory manifestation of excess growth hormone is an elevated serum organic phosphorus. Unfortunately, I am sure that this is only a reversal in recording calcium and phosphorus levels on the patient's chart.

Pathological Anatomical Diagnosis

Chromophobe adenoma of the pituitary, 3 cm.

Pressure atrophy of remaining pituitary.

Atrophy of the ovaries, and the endometrium, moderate.

Recent thrombosis of the right middle cerebral artery, advanced.

Recent infarction of the right frontal, parietal and temporal lobes of the brain and of the left basal ganglia.

Tracheotomy

(Continued from page 395)

problems in bulbar poliomyelitis, J. Iowa Med. Soc., 40:479, 1950.

5. Galloway, T. C., M.D.: Tracheotomy in bulbar poliomyelitis, J.A.M.A., 123:1096, 1943.

6. Goodall, E. W., M.D.: Story of tracheotomy, Brit. J. Child Dis., 31:167, 1934.

7. Jackson, C., M.D.: High tracheotomy and other errors the chief cause of chronic laryngeal stenosis, Surg., Gynec., and Obstet., 32:392, 1921.

8. Jackson, C., M.D.: Drowning of patient in his own secretions, Laryngoscope, 21:1183, 1911.

9. Jackson, C., M.D. and Jackson, C. L., M.D.: Tracheotomy, Am. J. of Surg., 46:519, 1939.

10. Jackson, C., M.D.: Decannulation and extubation after tracheotomy, and intubation, respectively, Jr. Am. Laryng. A., 35:189, 1913.

11. Merkel, B. M.: Tracheotomy, J. Iowa Med. Soc., 41:346, 1951.

12. Priest, R. E., M.D. and Boies, L. R., M.D.: Tracheotomy in bulbar poliomyelitis, Amr. Otol. Rhin. & Laryng., 56:250, 1947.

13. Von Leden, H., M.D.: Newer indications for tracheotomy, Jr. Am. Acad. Ophth. & Oto., 56:52, 1952.

14. Mitchell, R. J., M.D. and Forrest, H. L., M.D.: Tracheotomy in bulbar poliomyelitis, Jr. Iowa Med. Soc., vol. XL, N. 10, 471-479, 1950.

15. Nakamura, F., M.D. and Yukata, V., M.D.: Electromyographic study on respiratory movements of the intrinsic laryngeal muscles, The Laryngoscope, vol. 68:109, no. 2, Feb., 1958.

16. Sodeman, A. William, M.D.: Pathologic Physiology, W. B. Saunders Co., Phil. 1950, pp. 195-224.

17. Houssey, Bernardo: Human Physiology, McGraw-Hill Book Co., Inc., Second Edition, N. Y., 1954, pp. 241-322.

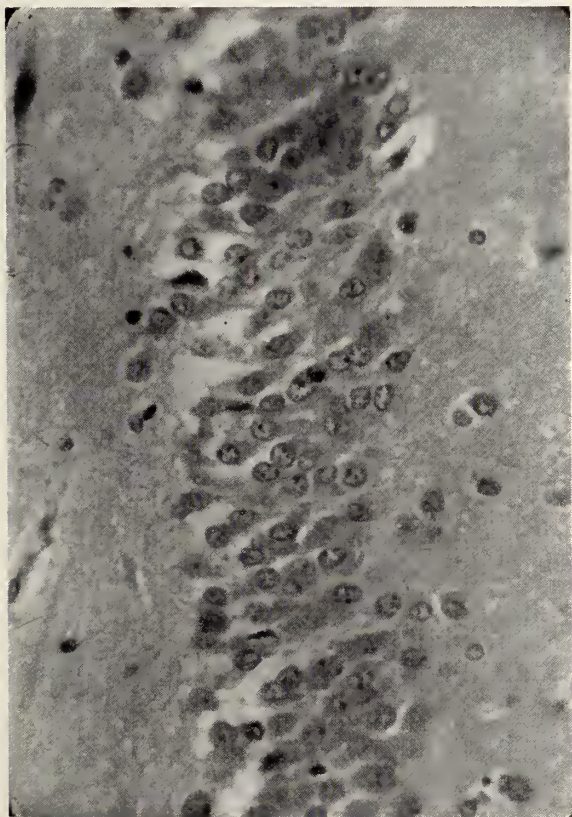


Figure 6. Ammon's Horn in left cerebral hemisphere showing normal neurons.

Gullibility is the key to all adventures. The green-horn is the ultimate victor in everything; it is he that gets the most out of life.—G. K. Chesterton

What is now proved was once only imagined.



Studies on the Effect of Tetanus Antitoxin Against Tetanus Toxin

HOWARD CHIN, M.D., *Oakland, California*

TETANUS IS A DISEASE of man and animals characterized by spasms of voluntary muscles. The spasms are often most marked in the muscles of the neck, jaw, hence the name "lockjaw." The disease is caused by the very potent toxin produced by *Clostridium tetani*. The tetanus bacillus was first described in 1884 by Nicolaier. Kitasato, in 1889 isolated the organism in pure culture and demonstrated its casual significance. According to the experimental evidence of Meyer and Ransom, the toxin is absorbed by the end plates of the motor nerves and travels to the ganglion cells of the central nervous system along the axis cylinders of the peripheral nerves. Liquid cultures are highly toxic; 5 x 10 cubic centimeter of liquid culture may be fatal to a mouse weighing 10 grams. Hall repeatedly produced toxin of which the minimum lethal dose for a guinea pig was rarely more than 0.0001 cubic centimeter.

Passive immunization of man with tetanus antitoxin, produced in horses, provides circulating antibody which combines with toxin and renders it harmless. But once symptoms of tetanus have appeared, resulting from tetanus toxin absorbed by the motor end plates, tetanus antitoxin can not dislodge it. The affinity of the nervous tissue, for tetanus toxin is very great, and symptoms of tetanus may appear in spite of the presence of circulating antibody. Prevention of

tetanus from injuries could be accomplished by debridement and the administration of antibiotics, notably penicillin and tetracyclines, within 24 hours after inoculation of tetanus spores. Turner found that after administering a therapeutic dose of tetanus antitoxin in patients, the protective level of tetanus antitoxin against tetanus toxin lasted at least seven days. The importance of maintaining a certain level of serum tetanus antitoxin in rabbits to prevent death from tetanus was described by Prodovsky and Turner. A fatal case of tetanus was reported by Littlewood and Mant in 1954 despite the fact that the patient had received the accepted prophylactic dose of tetanus antitoxin. History in this patient revealed that he had also been given a prophylactic dose of tetanus antitoxin after an injury 6 months previously. The authors postulated that if a patient is sensitized against horse serum, the second or subsequent injection of tetanus antitoxin, equine origin, led to an accelerated removal from the blood.

Presentation of Problem

The present paper describes experiments to determine: a) The 50 per cent lethal dose of tetanus toxin for mice. b) The minimum amount of tetanus antitoxin needed to protect these mice against at least one LD₅₀ of tetanus toxin. c) The duration of protection of tetanus antitoxin in mice. d) To see if mice that have been injected with antitoxin contained within a foreign protein, horse serum, will develop antibody against horse serum and thereby render a subsequent injection of antitoxin less effective against tetanus toxin.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Chin is now at the Children's Hospital of the East Bay, Oakland, California.

Methods and Results

Experiment 1. DETERMINATION OF THE POTENCY OF TETANUS TOXIN IN MICE:

Tetanus toxin was diluted as follows: 1:1000, 1:2000, 1:5000, 1:10,000, 1:20,000, 1:40,000, 1:60,000, 1:80,000, 1:100,000 and 1:1,000,000. One tenth milliliter of each dilution was then injected intramuscularly into the left thigh of 2 Hauschka strain mice, 6 weeks old, weighing between 25-30 grams.

The LD₅₀ was approximately one tenth milliliter of 1:20,000 dilution of stock toxin. Mice injected with a lower dilution all died within 5 days, while those with a higher dilution all showed signs of paralysis at the site of injection, but none died. These recovered completely from their paralysis within 60 days.

Experiment 2. DETERMINATION OF THE PROTECTIVE VALUE OF TETANUS ANTITOXIN AGAINST TETANUS TOXIN:

Tetanus antitoxin, equine origin (obtained from the National Drug Company, stock number 78085 contained 1000 units per milliliter), was diluted so that each tenth of a milliliter contained 1 unit of tetanus antitoxin. Three groups of 8 mice each were given the following amount of tetanus toxin: Group I was injected intramuscularly into left thigh with 0.1 cc. of 1:2000 tetanus toxin (approximately 10 LD₅₀). Group II was injected intramuscularly with 0.1 cc. of 1:1000 tetanus toxin (approximately 20 LD₅₀). Group III was injected intramuscularly with 0.1 cc. of 1:500 tetanus toxin (approximately 40 LD₅₀). Then 2 mice from each group of 8 were injected intramuscularly into right thigh with either 0.2 cc. physiologic saline, 1 unit, 2 units or 4 units of tetanus antitoxin. The interval between the administration of the tetanus toxin and antitoxin was less than 30 minutes.

One to 4 units of tetanus antitoxin protect mice against death after injection of up to 20 LD₅₀ of tetanus (*table 1*). With similar amount of tetanus

Table 1

TETANUS TOXIN - ANTITOXIN TITRATION HAUSCHKA MICE 6 WKS. OLD, 25-30 GMS.

| UNITS OF TETANUS ANTITOXIN | TETANUS TOXIN (0.1 cc. I.M.) | | | | | |
|-------------------------------------|--------------------------------|----|---------------------------------|----|----------------------------------|----|
| | 10 LD ₅₀ GROUP I | | 20 LD ₅₀ GROUP II | | 40 LD ₅₀ GROUP III | |
| 0 | 18 | 18 | 18 | 65 | 18 | 18 |
| 1 | 65 | | 40 | | 240 | 72 |
| 2 | | | 18 | | 18 | 72 |
| 4 | | | | | 240 | 72 |

NUMBERS IN SQUARES INDICATE TIME OF DEATH IN HOURS

NUMBER IN LOWER LEFT CORNER INDICATE ONSET OF PARALYSIS OF LEFT HIND LEG IN HOURS

antitoxin, there is partial protection against 40 LD₅₀ of tetanus toxin. In Group I, injected with 10 LD₅₀ of tetanus toxin, only one mouse showed signs of left leg paralysis, after having received 1 unit of tetanus antitoxin previously. Other mice, having received a greater amount of tetanus antitoxin (2 and 4 units), showed no signs of paralysis. In Group II, injected with 20 LD₅₀ of tetanus toxin, one mouse after having received 1 unit of tetanus antitoxin and 1 mouse after having received 2 units of tetanus antitoxin, showed signs of paralysis of left hind leg, the site of tetanus toxin injection, while mice that had received 4 units of tetanus antitoxin showed no signs of paralysis. In group III, injected with 40 LD₅₀ of tetanus toxin, all mice showed signs of paralysis, whether they had received 1, 2, or 4 units of tetanus antitoxin. The onset of paralysis showed no correlation with the amount of tetanus antitoxin received. Signs of left leg paralysis began between 18 to 72 hours after the injection with tetanus toxin. All mice had complete recovery from paralysis within 60 days.

Experiment 3. DETERMINATION OF DURATION OF PROTECTION BY TETANUS ANTITOXIN:

Three groups of 28 mice each were used in this experiment to receive either 1, 2, or 4 units of tetanus antitoxin. From each group, 6 mice served as controls. One injection of tetanus antitoxin was given to two mice from each group from the 20th day and every other day up to and including 0 day, at which time 0.1 cc. of 1:1000 tetanus toxin (approximately 20 LD₅₀) was injected intramuscularly into all mice.

The duration of protection by antitoxin against tetanus toxin was about 8 to 10 days (table 2). In a later experiment, this was shown to be approximately 7 days (table 3b). The majority of the animals that had received tetanus antitoxin for 10 to 20 days before the challenging dose no longer had a sufficient antitoxin level to afford protection to a subsequent challenge dose of 20 LD₅₀ of tetanus toxin. One animal after having received 1 unit of tetanus antitoxin on the 14th day survived. Three animals after having received 2 units of tetanus antitoxin on the 20th, 14th, and 12th day respectively survived. One animal after having received 4 units of tetanus antitoxin on the 18th day and 2 animals on the 14th day survived, while all animals after having received 4 units of tetanus antitoxin on the 10th day died. These survivals were attributed to biological variation. Such variation may explain death of one animal that had received 1 unit of tetanus antitoxin only 6 days before the challenging dose of tetanus toxin.

Experiment 4. EFFECT OF PRETREATMENT WITH TETANUS ANTITOXIN (HORSE SERUM) ON SUBSEQUENT TETANUS PROPHYLAXIS:

Two groups of mice were used in this experiment: The first group of mice was subdivided into 3 sub-

groups: a) One subgroup of 14 mice was injected intramuscularly with 1 unit of antitoxin. b) A second subgroup of 14 mice was injected with 2 units of antitoxin, and c) The third subgroup of 14 mice was injected with 4 units of antitoxin. Additional 10 mice were used as control for the pretreated group. These pretreated mice were left in their cages for 18 days. Then on the 18th day, and every other day thereafter including day 0, 2 mice from each subgroup of the pretreated and non-pretreated groups a), b) and c) were given an injection of 1, 2, and 4 units of antitoxin. The second group of mice was not pre-injected with tetanus antitoxin before the 12th day. They received only one injection of tetanus antitoxin starting from the 12th day to day 0. On day 0 both groups, the pretreated and the non-pretreated groups were injected with 20 LD₅₀ of tetanus toxin intramuscularly.

Comparison of protection afforded by tetanus antitoxin in mice once pretreated or not, showed little difference, either in mortality of paralysis (table 3a and 3b). The median time of death in the pretreated group was 6.0 days, while in the non-pretreated group, it was 7.3 days. Even 4 units of antitoxin injected in a single dose failed to produce a sufficient amount of antibody against horse serum.

Experiment 5. EFFECT OF PRETREATMENT WITH TWO DOSES OF TETANUS ANTITOXIN (HORSE SERUM) 30 DAYS APART ON SUBSEQUENT TETANUS PROPHYLAXIS:

Two groups of mice were used in this experiment: The first group of mice was subdivided into 3 subgroups injected with 1, 2, or 4 units of tetanus antitoxin on 67 and 37 days prior to day 0. The second group of mice was not pretreated with tetanus antitoxin before the 7th day. Then from the 67th (-7 day), 66th (-6 day), 65th (-5 day), 64th (-4 day) and 0 day, 2 mice from each subgroup, of the pretreated and the non-pretreated groups, were given injections of 1, 2, and 4 units of tetanus antitoxin. As for control for persistence of passive immunity, 10 mice given 4 units of tetanus antitoxin on -67th and -37th day were used.





















































































On 0 day, all mice were injected with a dose of tetanus toxin 20 times LD₅₀ intramuscularly.

The data in table 4 indicate that when mice were preinjected with 2 doses of tetanus antitoxin (horse serum) 30 days apart, they were no longer protected by tetanus antitoxin given 4 to 7 days previously. It may be postulated that these mice had developed sufficient amount of antibody against horse serum to interfere with the protective value of tetanus antitoxin against tetanus toxin. When comparing data with table 3 and 4, it appears that the second booster dose of tetanus antitoxin had increased the level of antibody against horse serum to a significant level, so that a subsequent protective dose of tetanus anti-

DURATION OF PROTECTION BY TETANUS ANTITOXIN

Table 2

 HAUSCHKA MICE
 6 WKS. OLD, 25-30 GMS.
 TETANUS - ANTITOXIN

| DAYS | 1 UNIT | 2 UNITS | 4 UNITS |
|---|--|--|--|
| -20 | <i>fighting</i> 40h  20h  | 50h 40h  4d  | 24h 24h 20h  20h  |
| -18 | 40h 40h 20h   | 30h 40h 20h  20h  | 24h   |
| -16 | 30h 20h 20h  20h  | <i>fighting</i> 24h   | 24h 30h 20h  24h  |
| -14 | 5d 20h   | 40h 20h  40h  |   |
| -12 | 24h 30h 20h   | 30h 20h  6d  | 26h 30h 20h   |
| -10 |   | 40h  6d  | 50h 65h 20h  24h  |
| -8 |   |   | 40h   |
| -6 | 6d 40h   | 65h  4d  | 40h   |
| -4 | 6d   |   |   |
| -2 |   |   |   |
| 0 20 LD ₅₀ TETANUS TOXIN GIVEN | 26h   |   | 4d   |
| +1 | 22h 26h 20h  20h  | 26h 26h 20h  20h  | 22h 26h 20h  20h  |
| +2 | 24h 26h 20h  20h  | 24h 24h 20h   | 24h 30h 20h  20h  |
| +3 | 24h 30h 20h  20h  | 24h 30h 20h  20h  | 24h 30h 20h  20h  |

LEGEND:  = PARALYSIS OF CORRESPONDING LEG  = DEATH h = HOURS d = DAYS
 RF LF
 RH LH

NUMBERS NEXT TO SQUARE INDICATE TIME OF ONSET OF PARALYSIS OR DEATH

MICE RECEIVED 1 DOSE TETANUS ANTITOXIN PREVIOUSLY

Table 3a NUMBERS IN SQUARES INDICATE TIME OF ONSET OF PARALYSIS IN HOURS
HAUSCHKA MICE, 6 WKS. OLD, 25-30 GMS.

| DAYS | PRE-TREATED WITH 1, 2, & 4 UNITS OF ANTITOXIN 18 DAYS BEFORE -12th DAY | | | | | | NOT PRE-TREATED MICE | | | | | |
|---|---|------------|------------|-----------|------------|------------|-------------------------|------------|------------|-----------|------------|------------|
| | 1 UNIT | 2 UNITS | 4 UNITS | 1 UNIT | 2 UNITS | 4 UNITS | 1 UNIT | 2 UNITS | 4 UNITS | 1 UNIT | 2 UNITS | 4 UNITS |
| -12 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 40 |
| -10 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 58 |
| - 8 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| - 6 | 58 | 20 | 20 | 20 | | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| - 4 | 20 | | 20 | | | | | | 20 | | | |
| - 2 | | | | | | | | | | | | |
| * 0 | 24 | 24 | 24 | | 24 | | 58 | 58 | | | 65 | |
| RECEIVED 4 UNITS OF TETANUS ANTITOXIN 30 DAYS BEFORE 0 DAY | CON- TROL | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| * AT 0 DAY ALL MICE WERE GIVEN 20 LD ₅₀ TETANUS TOXIN | | | | | | | | | | | | |

TETANUS ANTITOXIN GIVEN 4 HRS. BEFORE TETANUS TOXIN

CONTROLS RECEIVED NO TETANUS ANTITOXIN



















































































Table 3b NUMBERS IN SQUARES INDICATE TIME OF DEATH IN HOURS

| DAYS | PRE-TREATED MICE | | | | | | | NOT PRE-TREATED MICE | | | | | | | |
|--|------------------|----|---------|----|---------|----|---------------------------------|----------------------|----|---------|-----|---------|----|--------------------|--|
| | 1 UNIT | | 2 UNITS | | 4 UNITS | | MEAN TIME OF DEATH | 1 UNIT | | 2 UNITS | | 4 UNITS | | MEAN TIME OF DEATH | |
| -12 | 24 | 24 | 24 | 58 | 30 | 40 | 33 | 24 | 30 | 40 | 72 | 30 | | 39 | |
| -10 | 30 | 72 | 40 | 65 | 75 | | 56 | 58 | 58 | 24 | 75 | 72 | | 58 | |
| - 8 | 30 | 58 | 30 | 75 | 40 | 24 | 43 | 24 | 72 | | | 136 | | 78 | |
| - 6 | | 58 | 24 | 24 | | | 35 | 72 | 82 | 108 | 120 | | | 98 | |
| - 4 | 136 | | | | | | | | | | | | | | |
| - 2 | | | | | | | | | | | | | | | |
| * 0 | | | | | | | | | | | | | | | |
| RECEIVED 4 UNITS OF TETANUS ANTITOXIN 30 DAYS BEFORE 0 DAY | CON-TROL | 24 | 24 | 24 | 24 | 24 | 24 | | 20 | 20 | 20 | 20 | 24 | 24 | CONTROLS RECEIVED NO TETANUS ANTITOXIN |
| | | 24 | 24 | 24 | 36 | / | / | / | 24 | 24 | 24 | 24 | / | / | |
| MEDIAN TIME OF DEATH : 6 DAYS | | | | | | | MEDIAN TIME OF DEATH : 7.3 DAYS | | | | | | | | |

MICE RECEIVED 2 DOSES TETANUS ANTITOXIN 30 DAYS APART

Table 4

HAUSCHKA MICE
6 WKS. OLD, 25-30 GMS.

| DAYS | PRE-TREATED | | | NOT PRE-TREATED | | |
|--|---|---|---|--|---|--|
| | 1 UNIT | 2 UNITS | 4 UNITS | 1 UNIT | 2 UNITS | 4 UNITS |
| -67,-37 | TAT GIVEN | | | | | |
| - 7 | 36h fighting   | 36h 70h   | 36h 70h   | 70h  70h  | 36h  36h  | 36h   |
| - 6 | 36h  36h  | 36h  36h  | 36h 70h   | 4d  36h  | 4d  36h  | 70h   |
| - 5 | 7d 70h   | 36h  36h  | fighting 70h   | 36h  36h  |   |   |
| - 4 | 4d  36h  | 70h 5d   | 7d 9d   | 36h  fighting  | 70h   |   |
| 0 | 36h  36h  | 36h  36h  | 36h  36h  |   | 36h  36h  | 36h  7d  |
| 20 LD ₅₀ TETANUS TOXIN GIVEN | 36h  36h  | 36h  36h  | 36h  36h  | 36h  | | |
| CONTROL (NO 3rd DOSE OF TAT. ONLY PRE- INJECTED TAT) | 36h  36h  | 36h  | 36h  36h  | 16h  36h  | 36h  36h  | |
| | 36h  | | | 36h  36h  | | |
| | 36h  | | | 36h  36h  | | |

LEGEND:



= PARALYSIS



= DEATH

h = HOURS

d = DAYS

NOTE: THESE MICE WERE CHECKED EVERY 12 HRS.
NUMBERS NEXT TO SQUARES INDICATE
TIME OF ONSET OF PARALYSIS OR DEATH

toxin no longer afforded protection against a challenging dose of 20 LD₅₀ tetanus toxin. This was clearly shown in table 4, when the pretreated and non-pretreated groups of mice were compared. In the pretreated group of 30 mice, there were a total of 18 deaths due to tetanus toxin. In the non-pretreated group, there were only 2 deaths due to tetanus toxin. The onset of paralysis was approximately the same in both groups, which was about 36 hours. All mice recovered from their paralysis within 60 days. Mice in both groups died from tetanus from 36 hours to 9 days, the majority within 3 days.

Discussion

Kind reported that in mice previously sensitized with horse serum with one injection, a subsequent injection of tetanus antitoxin, after having been challenged with toxin, showed a marked decrease in prophylactic effectiveness against death from tetanus. The data (table 3) did not show a significant difference in prophylactic effectiveness against tetanus in mice that had received only one previous injection of tetanus antitoxin, which was horse in origin. However, when mice that had received 2 doses of horse serum (tetanus antitoxin) 30 days apart (table 4), then there was marked decrease in prophylactic effectiveness, when a third protecting dose of tetanus antitoxin was given, followed by a challenging dose of tetanus toxin. Tetanus antitoxin was chosen instead of plain horse serum for the sensitizing doses because it would be more analogous to clinical medicine, where, besides tetanus antitoxin, pertussis, diphtheria and other antitoxins are used and are usually obtained from horse serum. A combination of these injections may be enough to sensitize the person and may account for some of the anaphylactoid reactions after receiving tetanus antitoxin. Likewise, tetanus may develop in a person in spite of adequate dose of tetanus antitoxin because tetanus antitoxin is destroyed in an accelerated rate due to sensitization.

It was found with the Ouchterlony agar-gel diffusion technique, using tetanus toxin as antigen and tetanus antitoxin as antibody, that there were 4 visible lines formed. This indicates that there are at least 4 antigens present in the tetanus toxin and similarly, there are at least 4 antibodies present in the tetanus antitoxin of equine origin. It would be of interest to purify the tetanus toxin and see which one or more of the antigens would produce tetanus. And if a pure fraction of the tetanus antitoxin which contains the antibody against tetanus could be obtained, possibly by the electrophoretic method, then we may be able to use this fraction in an emergency situation to treat patients who are sensitive to horse serum, and an anaphylactoid reaction might be avoided, since only a very small amount would be used. An

alternative method would be the use of hyperimmune human gamma globulin. Thorough debridement with chemotherapy, in any event, would still be required.

Summary

1). The LD₅₀ of tetanus toxin in Hauschka mice was approximately 0.1 cc. of 1:20,000 dilution, injected intramuscularly.

2). One unit of equine tetanus antitoxin protects mice against death up to 20 LD₅₀ of tetanus toxin and partial protection up to 40 LD₅₀.

3). The duration of protection afforded by tetanus antitoxin against 20 LD₅₀ of tetanus toxin is approximately 7 days in mice.

4). In mice that had previously received one dose, a subsequent dose of tetanus antitoxin did not show a significant decrease in effectiveness. However, when mice previously had received 2 doses of tetanus antitoxin, 30 days apart, a subsequent dose gave little protection against a challenging dose of tetanus toxin.

5). By the Ouchterlony agar-gel diffusion technique, at least 4 antigen-antibody precipitin bands could be shown when tetanus toxin was used with equine tetanus antitoxin.

Acknowledgment: I am very grateful to Dr. J. K. Frenkel, Professor of Pathology, KUMC, for his advice and assistance in the preparation of this paper.

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 West 4th Street, Topeka, Kansas.

Superstitions

Even the time-honored ceremony of breaking a bottle of champagne across the bow of a ship has roots in superstition. It dates from the days when sailors went out of their way to appease the sea. Greek and Roman fishermen would leave a portion of their catch on the beach as a peace offering, and Indo-Chinese fishermen once sacrificed a man yearly to the sea god as the price of their fleet's safe return.

True wealth can only be measured by the richness of one's heart and mind.

Once you have missed the first buttonhole you'll never manage to button up.—*Goethe*

Loyalty cannot be coerced or compelled, it has to be won.—*A. Whitney Griswold*

A thick skin is a gift from God.

—*Konrad Adenauer*

The President's Message

DEAR DOCTOR:

I wish I might report an improvement in my health so I could personally attend to the obligations you entrusted into my care. There is an indescribable urgency within me to aid in solving the many problems confronting the practice of medicine. I long for the day when this dream may be a reality. I have not given up hope.

Meanwhile many have taken over my duties in your behalf and Society activities are being accomplished. To each of you my sincerest gratitude. I follow your successes with great interest.

May I call your attention at this time to several projects I believe are worthy of special mention.

A new Relative Value Scale is now on the presses. This greatly expanded document will reach you in a few days. I envision it to become the basis for the creation of all future fee schedules. Blue Shield hopes to convert existing schedules into this scale by 1963. In your private practice you will find the new Relative Value Scale of interest and perhaps helpful.

The Public Relations Committee is conducting a one day conference at Emporia on Sunday, September 17, 1961. All members are invited to attend and we especially urge each component society to be represented. The meeting will be of interest to you, but more important, it is designed to coordinate the public relations efforts of the entire state.

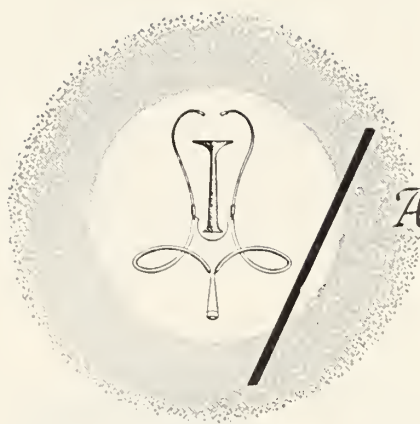
There is work being done on safety, welfare programs, on relations with the Bar Association and many other projects. You will hear more about these and of others through the Council. In the meantime, I wish you each every success in your personal and in your society activities toward the end that we may render the people in this state the finest medical care in the world.



Fraternally yours,

Harold M. Glover, M.D.

President



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The American College of Chest Physicians will hold its annual Interim Session at the Brown Palace Hotel in Denver, Colorado, November 25-26.

The scientific sessions will be held on Saturday morning, November 25, and on Sunday afternoon, the 26th. The Board of Regents and Board of Governors of the College will meet on Saturday afternoon.

Subjects to be discussed will include diagnosis and treatment of congenital and acquired cardiovascular diseases, pulmonary infections, emphysema, and pleural effusions. Other items of interest are diagnosis and treatment of coronary insufficiency, evaluation of drugs for treatment of heart failure, inhalation therapy, bronchitis and bronchial asthma, carcinoma of the lung, chronic cor pulmonale, paroxysmal tachycardia, and diseases of the esophagus.

A speaker from this area will be Antoni M. Diehl, M.D., Kansas City.

A program may be obtained by writing the Executive Offices of the College at 112 East Chestnut Street, Chicago, Illinois.

The 1961 Scientific Session is to be held in conjunction with the American Cancer Society's Annual Meeting, October 23-24, 1961, in New York City, at the Biltmore Hotel.

The topic will be "The Physician and the Total Care of the Cancer Patient."

For further information write to the Professional Education Section, American Cancer Society, 521 West 57th Street, New York 19, New York.

The Arthritis and Rheumatism Foundation offers predoctoral, postdoctoral and senior investigatorship awards in the fundamental sciences related to

arthritis for work beginning July 1, 1962. Deadline for applications is October 31, 1961.

These awards are intended as fellowships to advance the training of young men and women of promise for an investigative or teaching career. They are not in the nature of a grant-in-aid in support of a research project.

For further information and application forms, address the Medical Director, Arthritis and Rheumatism Foundation, 10 Columbus Circle, New York 19, New York.

The Council on Scientific Assembly invites physicians to submit titles and brief abstracts of scientific papers they wish to deliver at the 1962 annual meeting of the American Medical Association, which will be held in Chicago, June 11-15. The deadline is October 15.

"We would like to receive as many titles and abstracts as possible," said Council Chairman Samuel P. Newman, of Denver, "because in that way we have better selection and this, in turn, assures a more timely and better scientific program."

Physicians who wish to participate in the Chicago scientific program and desire information are invited to write to Dr. Charles Bramlitt, Secretary, Council on Scientific Assembly, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois, or to any council member.

The 1961 Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held at the Hotel Muehlebach in Kansas City, Missouri, September 18-20, with nineteen distinguished guest speakers from throughout the United States being featured on the program.

(Continued on page 426)



Blue Shield

At one time Blue Shield had one standard membership agreement providing a uniform set of benefits for all subscribers. Through the years, various optional programs have been developed in response to requests from subscribers and physicians for more flexible plans.

Optional benefits naturally present many problems of interpretation for both the physician and the subscriber and it is very difficult for anyone to be completely familiar with all aspects of a program. However, the situation may not be as bad as it appears and a brief review of the options available to subscribers may be of some value in understanding the overall Blue Shield programs.

Basic Benefits

The vast majority of subscribers have either Fee Schedule 1 (\$3,000 family income) or Fee Schedule 2 (\$4,500 family income). These are the standard state-wide programs selected by over 90 per cent of the subscribers. There are other basic schedules, and employees of firms doing business in several states often have a special national program such as the Skelly Oil Company or U. S. Steel Program where the benefits vary from the two standard Schedules 1 and 2.

The most widespread example of a national account is the Federal Employee Program which has a fee schedule with two optional levels of benefits known as High Option or Low Option. Members of the Federal Employee Program are issued special identification cards which makes it relatively easy to recognize such members.

Riders

In addition to basic programs such as Fee Schedule 1 or 2, subscribers in employee groups may select

riders that provide services not available in the basic schedules. The most popular is the Diagnostic X-ray Rider which provides for non-accident x-rays. The Rider held by most subscribers provides for diagnostic x-rays either in or out of the hospital according to a Schedule. There are a few X-ray Riders with limitations that are sold only in sharp competitive situations.

Another option is the OUT-PATIENT LABORATORY SERVICES RIDER designed to provide benefits for pathology services. This is available only to groups.

A relatively new and low cost development is the Supplemental Accident Rider which provides additional benefits for professional services required as a result of accidental injury. The group selects one of three levels of benefits: \$250, \$1,250 or \$2,500.

The EXTENDED BENEFITS RIDER is available to groups or individuals and covers nine specified illnesses including polio, leukemia and cancer. Over 390,000 members have this program.

Major Medical

Groups may now select a MAJOR MEDICAL Plan. "Basic" benefits such as Schedule 1 or 2 are provided and in addition, services such as home and office calls, laboratory services, prescription drugs, private duty nursing and limited dental services are covered. These added benefits are usually subject to a deductible such as \$100, \$200 or \$300 per year and the Blue Shield payment is then a per cent of the balance, with 80 per cent being the most common figure.

For the most part, the Participating Physicians Manual contains detailed information regarding Schedules 1 and 2 and the Riders. Completely detailed

(Continued on page 426)

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011, ex. 297

Recent Acquisitions

Anatomy

Lockhart, R. D. *Anatomy of the human body.* Lippincott. 1959.

Bacteriology

Kimler, A. *Manual of clinical bacteriology.* Lippincott, 1961.

Biochemistry

Luck, J. M. *Annual review of biochemistry. Annual Reviews.* 1961.

Sunderman, F. W. *Lipids and the steroid hormones in clinical medicine.* Lippincott. 1960.

Biography

Kobler, J. *The reluctant surgeon.* Doubleday. 1960.

Cardiovascular System

Edwards, J. E. *An atlas of acquired diseases of the heart & great vessels. Volumes 1-3.* Saunders. 1961.

Kuhn, R. A. *New hope for stroke victims.* Appleton-Century-Crofts. 1960.

Moyer, R. F. *Cardiovascular dynamics.* Saunders. 1961.

Reube, F. C. *Essential hypertension.* Springer, Verlag. 1960.

Rushmer, R. F. *Cardiovascular dynamics.* Saunders. 1961.

Taussig, H. B. *Congenital malformations of the heart.* Harvard Univ. Press. 1960.

Communicable Diseases

Top, F. H. *Communicable & infectious diseases.* Mosby. 1960.

Dentistry

Thoma, K. H. *Oral & dental diagnosis.* Saunders. 1960.

Dermatology

Year Book of dermatology. Saunders. 1961.

Endocrinology

Ciba Foundation. *Metabolic effects of adrenal hormones.* Little, Brown. 1961.

Ibid. *Adrenergic mechanisms.* Little, Brown. 1960.

Harrison, R. G. *The adrenal circulation.* C. C. Thomas. 1960.

Gastroenterology

Kennedy, R. H. *Nonpenetrating injuries to the abdomen.* C. C. Thomas. 1960.

History

Hashinger, E., and Arthur E. Hertzler: *The Kansas horse & buggy doctor.* University of Kansas Press. 1961.

Hypnosis

Meares, A. *A system of medical hypnosis.* Saunders. 1961.

Medical Profession

Medical Exam. Pub. Co. Medical. Exam Review Book 7. Internal Medicine. 1961.

Miller, G. *Teaching & learning in medical school.* Harvard Univ. Press. 1961.

Medicine

Nagan, P. S. *Medical almanac.* Saunders. 1961.

Mental Health

Ridenour, N. *Mental health in the U. S.* Harvard Univ. Press. 1961.

Mortuary Science

Gale, F. *Mortuary science.* C. C. Thomas. 1961.

Musculoskeletal System

Hollingshead, W. H. *Functional anatomy of limbs & back.* Saunders. 1960.

Nervous System Diseases

Cooper, I. S. *Parkinsonism.* C. C. Thomas. 1961.

Swank, R. L. *A biochemical basis of multiple sclerosis.* C. C. Thomas. 1961.

Nursing

Sister Mary Bernadette. *Life of a student nurse.* Myers. 1961.

Nutrition

Gordon, R. *Therapeutic meal plans.* Univ. of Kansas Press. 1960.

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Book REVIEWS

MEDICAL ALMANAC—1961-62. Compiled by Peter S. Nagan, and published by W. B. Saunders Company.

This is the first edition of what the author hopes may become a regularly revised reference book. It is like other almanacs—there is a tremendous amount of data included within its 500 plus pages. It should be useful as a reference book for editors, librarians, government officials, writers, etc., and in addition it is interesting to pick it up, let it open anywhere, and start reading. You may not find use for the information you read, but the chances are good that you will enjoy your browsing through the book. Included are descriptions of all the certification boards, statistics about hospitals, hospital and medical costs, a listing of national organizations and their meetings, a tabulation of all the medical schools in the country, research projects and grants, income tax information, Selective Service regulations, a listing of Nobel prize winners, etc., etc. Not a book to read from cover to cover, not one to which you will refer daily or from which you will get any clinical helps, it is still interesting reading and a useful source of statistical information.—O.R.C.

A SYNOPSIS OF PHYSIOLOGY—by C. C. N. Vass, pp. 348, Williams and Wilkins, Baltimore, Ed. 5, 1961.

Probably all of us, when we think of a medical physiology book, visualize a tome of imposing proportions packed with so much discussion of experimental procedures that the conclusions—the facts—are all but inaccessible. This synopsis is the reverse.

In a volume that is almost small enough to put into one's jacket pocket the author has packed the facts of human physiology stripped of all but the barest explanations. The synopsis is not intended to replace standard textbooks or references, but rather to supplement them by presenting a rather complete summary for quick factual reference or review. It makes it possible for the student or physician to renew and extend his knowledge in a minimum amount of time.

Material is presented in outline form with an abundance of figures and tables. This makes it possible to present an enormous amount of factual material in a book of really small size. The printing and binding are good, and the index appears to be adequate.—J.D.R.

THE CARDIAC ARRHYTHMIAS. Brendan Phibbs, M.D. C. V. Mosby Company, 1961.

This book is intended to teach physicians who are not cardiologists to diagnose and treat cardiac arrhythmias. As the author states, almost all physicians need to be competent in the diagnosis and treatment of cardiac arrhythmias. Frequently, critical decisions must be made in a matter of minutes and time is not available for consultation. This book is a concise summary on the diagnosis and treatment of cardiac arrhythmias. The average physician can read it through and assimilate its contents in one or two evenings. The text is amply supplemented with numerous representative electrocardiographic tracings illustrating the various arrhythmias. Diagrams showing the abnormal mechanisms involved in the arrhythmias will be found very helpful to those physicians who have had little experience with the electrocardiogram. Explanations are clear and concise. The author has done an excellent job in presenting a complicated subject in a concise clear form. Although the experienced cardiologist may find this book too elementary for him, the physician without special training in cardiology and electrocardiography will welcome the simple easy-to-understand presentation of the arrhythmias that Doctor Phibbs presents in this book.

The book is divided into five sections. The first two on Anatomy and Physiology and Electrical Registration of the Heartbeat comprise only a few pages. The third section, Abnormal Mechanisms as Registered in the Electrocardiogram makes up 90 per cent of the book. This section also includes a chapter on cardiac arrest during surgery. Part four is a brief section on clinical diagnosis of cardiac arrhythmias. Throughout the book the author repeated—

(Continued on page 426)



Editorial COMMENT

Industrial Schools

(The Division of Institutional Management of the State Board of Social Welfare prepared a statement of the functions and admission procedures of the eleven state institutions under its direction. This information will be published serially during the next several months.—Ed.)

The Industrial School for Girls is located at Beloit, Kansas, and the Industrial School for Boys at Topeka, Kansas.

Commitment is made under the Juvenile Code by the Juvenile Court. Mentally deficient, psychotic, dependent, or neglected children should not be committed to an Industrial School, but should be referred to other sources designed for their particular problems.

When a child has been adjudged to be a delinquent child, or a miscreant child, under provisions of the Juvenile Code, the judge of the juvenile court may commit such child, if a boy, to the State Industrial School for Boys, or may commit such child, if a girl, to the State Industrial School for Girls.

Delinquent is defined as a boy less than 16 years of age, or a girl less than 18 years of age (other than a "traffic offender") who does an act which if done by a male person 16 years of age or over, or a female person 18 years of age or over, would make him or her liable to be arrested and prosecuted for the commission of a felony; or who has been adjudged a miscreant child under the Juvenile Code three or more times.

Miscreant is a boy less than 16 years of age, or a girl less than 18 years of age (other than a "traffic offender") who does an act which if done by a male person 16 years of age or over, or a female person 18 years of age or over, would make him or her liable to be arrested and prosecuted for the commission of a misdemeanor, or violation of ordinance, police regulation, or political subdivision order, rule or regulation; or who has been adjudged a wayward child under this act three or more times.

(Wayward child is defined as a boy less than 16 years of age, or a girl less than 18 years of age whose behavior is injurious to his or her welfare; who has deserted his or her home without good or sufficient cause; who is habitually disobedient to the reasonable and lawful commands of parents, guardian or other lawful custodian.)

The *Boys' Industrial School*, with an emergency capacity of 190, receives delinquent and/or miscreant boys, as defined by the Juvenile Code, who are less than 16 years of age, who are committed by judges of county juvenile courts. The length of time a boy shall remain at the school is indefinite; the law provides that he shall remain until he is 21 years of age, unless sooner discharged.

Although there is nothing in the laws concerning a minimum age for commitment, the facilities of the institution make it undesirable to commit boys under the age of nine.

Boys are committed to the Boys' Industrial School by the Juvenile Courts to give them a chance to receive the particular help they need in solving their problems. To help the boy, it is necessary to understand him and the forces that have caused his problems. After arrival, each boy receives a physical, psychiatric, and dental examination, psychological and educational tests, and has a series of interviews with his caseworker. A program to meet the needs of the individual boy is then outlined including cottage life, medical care, education, vocational training, recreation, religion, social service, psychiatric service, psychological service, and other aspects of his institutional life.

When the institutional staff agrees that the boy has made satisfactory progress, and with a minimum of help should be able to deal adequately with his own problems outside the institution, he is recommended for parole. When he has successfully completed his parole period, he is recommended for discharge. The

(Continued on page 427)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

PROOF OF THE PUDDING

There was a bit of irony in the news last week; quite a bit, in fact.

First came an announcement that Kansas has not had a single polio case reported since last September. A State Board of Health spokesman said this was the longest period the state has ever had without a polio case.

The next day, papers carried a story about Dr. Jonas E. Salk, who developed the vaccine responsible for Kansas' remarkable record this year. The great doctor was defending his vaccine against an attack by the American Medical Association. The association on June 28 had called for mass vaccination with a different "live" vaccine when it becomes available, and further asked that all persons who had already received Salk shots be given the new shots, too.

Dr. Salk, at a news conference, said he did not want to build any competition between the vaccines, but he saw no reason for revaccinating everybody with the new vaccine (developed by Dr. Albert Sabin). He suggested that his own vaccine had set up a new principle that could eventually lead to a single vaccine that would grant immunity to nearly 100 diseases.

The A.M.A. action, he indicated was based on an "old medical dogma" that says live vaccines are better than dead ones.

The man on the street certainly is in no position to take sides in this argument because of his lack of knowledge of science and medicine, and ignorance of clinical research. Doctors seem to pride themselves on using Latin or medical doubletalk that is impossible for laymen to understand, and this probably is just as well.

But most Americans are able to understand simple statistics. When a state that was once plagued each

summer with hundreds of polio cases—many of them fatal—all of a sudden has no cases in 10 months, even the most ignorant can understand.

Dr. Jonas Salk developed a vaccine that has virtually wiped out one of this state's most dread diseases. The A.M.A. may not think his method is effective, but it will have a hard time convincing the residents in the Sunflower State.—R. C., *Emporia Gazette*, July 17, 1961.

MEDICAL PLAN FOR AGED

The fight to bring this nation a form of socialized medicine by providing medical aid for the aged through social security has flaws as well as good points. A proponent of the plan said it was all right for old people as long as it didn't interfere with the personal service his doctor gave him.

It's a little difficult to determine how the proposed medical program would affect the routine of the medical man. He might be obliged to treat all patients like a flock of sheep. Give them a shot as they walk by and quit when the clock strikes 5, leaving part of the flock waiting until next morning.

Americans have asked too much from their doctors for two reasons. They've bought health insurance and they have found that new drugs are quick to relieve illnesses which could be cured in a few days. Too many people with a cold refuse to smear on the goose grease and wait it out. Instead they rush up to the doctor and get a shot of smackus virus.

When it appears the illness will be drawn out the patient is placed in the hospital. Insurance pays the bill and of course, this is one way to collect a medical bill. It's surprising how many people don't pay the doctor for services. They change doctors instead.

From the financial standpoint, it doesn't seem right to put the medical program under social security.

Social security costs have been going up at regular intervals. Government doesn't ask the worker if he wants to contribute more. The money is extracted like income taxes. This is a place where the line could be held. Furthermore, it isn't wise to be tampering with the social security fund. It was meant for one purpose.

If this country needs a medical plan it should be set up as a separate program. It won't be many years until retired people can afford to carry on health insurance they had during their productive years. Insurance companies are moving in that direction. The people could sponsor their own medical plan if government would give them a chance.—*Arkansas City Daily Traveler*, July 14, 1961.

NEED OF DRUG CONTROL

The American Medical Association, predictably, has announced its opposition to a Senate bill slapping controls on the manufacture and distribution of medical drugs. Sen. Estes Kefauver, sponsor of the bill, says its principal aim is to "secure relief from a monopolistic industry" by cutting "generally unreasonable and excessive" drug prices.

An A.M.A. spokesman contended that most of the remedies in the bill should be left to the voluntary action of the A.M.A., the drug industry, and individual doctors.

Most people will agree that, ideally, voluntary reform would be preferable to government regulation; but the record encourages little hope of effective voluntary action. Last year's Senate hearings on the drug industry indicated that fondness for profits in some segments of the industry has outweighed regard for the bill-paying public. Even a trusting nature hesitates at believing that violators will voluntarily reduce profits and correct abuses; and the A.M.A.'s suggestion of voluntary reform implies an admission that such abuses do exist.

The proposed federal law, if reasonably drawn, will not damage the responsible part of the industry, any more than a speed limit damages a law-abiding driver. But the record, as brought out by the Kefauver investigation, plainly shows that such a law is needed.—*Wichita Eagle*, July 7, 1961.

Announcements

(Continued from page 420)

All physicians who are members of their county medical societies are cordially invited to attend. The complete program may be obtained by writing the Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City 8, Missouri.

Blue Shield

(Continued from page 421)

information on National Accounts has not been furnished since each group usually has a unique set of benefits. However, such information is available from the local enrollment representative or through the Topeka Office of Blue Shield. Also, a reference chart is being prepared which should help in the interpretation of Blue Shield benefits.

From the Stacks

(Continued from page 422)

Mayo Clinic. Mayo clinic diet manual. Saunders. 1961.

Obstetrics & Gynecology

Greenhill, J. P. Obstetrics. Saunders. 1960.

Occupational Therapy

Dunton, W. R. Occupational therapy. C. C Thomas. 1960.

Book Reviews

(Continued from page 423)

ly emphasizes that the clinical diagnosis of an arrhythmia without the benefit of an electrocardiogram is usually unreliable. Hence this section is rather short. Part five consists of fifty-two electrocardiograms with which the reader can try his skill at diagnosing the various arrhythmias. The correct answers are given in the back of the volume.

This book is a valuable book for teaching the diagnosis and treatment of the various cardiac arrhythmias. It would be a useful reference for the doctor's office and the hospital emergency room.—*W.G.C.*

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Gene O. Harpster, M.D.
5832 Reeds Rd.
Mission, Kansas

Walter L. Reazin, M.D.
505 N. Hillside
Wichita 14, Kansas

Frank A. Mantz, M.D.
2912 West 73rd
Prairie Village, Kansas

Joseph H. Rohr, M.D.
5808 Nall Avenue
Mission, Kansas

John L. Nieman, M.D.
7501 Mission Road
Prairie Village, Kansas

Allen T. Stewart, M.D.
Valley Falls, Kansas



Personalities—IN KANSAS MEDICINE

Dr. Donald Marchbanks is closing his medical practice in Hill City and plans to open his office in Salina.

Dr. David Gray, Topeka, was elected president of the Science Fair board of directors.

Dr. B. L. Gardner, Winfield, is taking a leave of absence from his active practice of medicine in the near future to take postgraduate medical study at St. Mary's Hospital in Kansas City, Kansas. Upon completion of the work he will resume active practice in association with **Dr. J. H. Depoe**, **Dr. C. D. Litton**, and **Dr. S. S. Daehnke**.

Dr. Carl E. Olson has reopened his office in Fowler. The office has been closed for the past year as **Dr. Olson** has been taking advanced study in medicine at the University of Kansas Medical Center.

Dr. Lafe Bauer closed his active practice in Smith Center to move his family to Shawnee Mission, Kansas.

Dr. E. N. Robertson, Concordia, attend the American Medical Association convention in New York.

Dr. Frank L. Menehan, a founder of the Wichita Medical Clinic, recently announced his retirement. A pediatrician in Wichita since 1932, he founded and practiced at the clinic since 1948. **Dr. and Mrs. Menehan** will move to La Jolla, California.

The American College of Chest Physicians held its 27th Annual Meeting in New York City, June 22-26. At the convocation on June 25, fellowship certificates were conferred on 204 physicians. Recipients of these certificates from Kansas are **E. Ernest Johnson, Jr., M.D.**, **Norton** and **B. G. Achar, M.D.**, **Wadsworth**.

Editorial Comment

(Continued from page 424)

discharge certificate is signed by the institution superintendent.

For certain offenses, such as repeated escapes, destruction of state property, or assault upon employees, the institution may petition the district court to sentence a boy to the State Industrial Reformatory at Hutchinson.

The *Girls' Industrial School*, with a capacity of 90, receives delinquent and/or miscreant girls, as defined by the Juvenile Code, who are less than 18 years of age, who are committed by judges of county juvenile courts. No legal minimum age for commitment is provided, however, the program of care, treatment, and training is best fitted for teen-age girls, with emphasis on education, vocational training and home living.

Psychiatric services, psychological and social service counseling, religious instruction, academic and commercial education and vocational training, recreational activities and the department of homelife and cottage program are utilized in the school's activities. The treatment and training program is adapted to the individual needs of the girl in an effort to return her as soon as possible to her family and community.

A committed girl remains until 21 years of age, unless sooner discharged. The discharge is issued by the superintendent of the institution and usually follows a parole period. For certain offenses such as repeated escapes, destruction of state property, or assault upon employees, the institution may petition the district court to sentence the girl to the Women's Industrial Farm at Lansing.



ALPHA D. UPDEGRAFF, M.D.

Dr. A. D. Updegraff, 83, Wichita physician and surgeon until his retirement two years ago, died July 28 at his home in Valley Center.

Born June 12, 1878, at Pretty Prairie, Kansas, Dr. Updegraff began his practice in 1901 at Kansas City, Kansas, following his graduation from the College of Physicians and Surgeons in Kansas City. In 1902, he moved to Anthony, Kansas, where he continued his practice until moving to Wichita in 1912.

He is survived by his wife, Edna, and one son, Alpha M., of Valley Center; two grandchildren and four great-grandchildren.

GEORGE A. WESTFALL, JR., M.D.

Dr. G. A. Westfall, Jr., 42, Halstead, Kansas, died at the Halstead Hospital on July 22 of hemochromatosis and portal cirrhosis with massive esophageal hemorrhage.

He was born February 8, 1919, in Harper, Kansas. He graduated from the University of Kansas in 1944 with his M.D. degree. He joined the staff of the Hertzler Clinic and the Halstead Hospital in 1949 and served as Hematologist in the Department of Internal Medicine until his death.

Surviving him are his widow, Edna Lucile and two children, Marcia Ann 12, and George, III, 10. Also by his mother, Della Westfall and one brother, Dr. Cad Westfall of Fort Worth, Texas.

GROVER G. WHITLEY, M.D.

Dr. Grover G. Whitley, 68, long-time physician in Douglass, died July 10 in Winfield. He retired from active practice in 1955.

Born August 29, 1892, he was graduated from Tulane University, New Orleans, in 1916. He moved to Douglass in 1919 following service with the medical corps in World War I. He went into practice with Dr. Arthur W. Fegtly, now of Wichita, for quite a number of years.

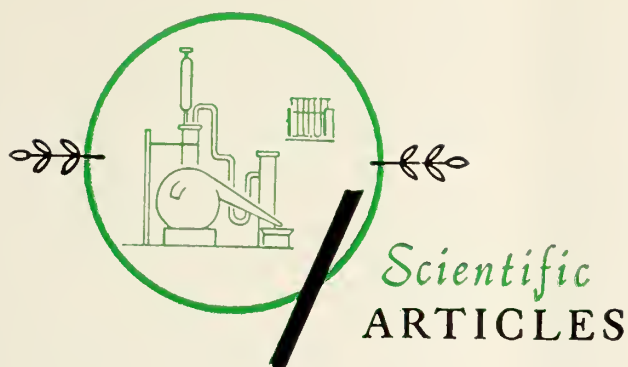
He is survived by his wife, Florence, a daughter, three grandchildren and a sister.

ERNEST D. WILLIAMS, M.D.

Dr. E. D. Williams, 90, Kansas City, long-time physician and surgeon and former county coroner, died in his home on July 8 after a two year illness.

Born in Manhattan, Kansas, August 28, 1870, he graduated from the University Medical College of Kansas City in 1899 and began practicing medicine in Armourdale. He retired from active practice in 1952. In 1911 he founded the Lifelone Orphanage which is now known as the Lifelone Children's Home.

Surviving are his wife, Mrs. Beryl M. Williams, of the home, a daughter of California; two granddaughters and five great-granddaughters.



Sarcoidosis

The Clinical Picture of Sarcoidosis: A Report of Eight Proved Cases

**JOSEPH N. PLUMER, M.D., and
ALBERT JACKSON, M.D., Wadsworth***

SARCOIDOSIS is a mysterious and puzzling disease. There recently has been revived interest in this disease.¹ Diagnosis is still difficult and many cases are discovered only on postmortem examination.

We have had 8 patients with sarcoidosis in our hospital in the past 10 years, proved in every case by biopsy of a lymph node, showing the typical appearance.

Seven patients were around 30 years old, the other 57 years old.

Five were Negro and 3 white, all males. The high prevalence of Negroes with sarcoidosis was confirmed when comparison was made with our general patient population.

Histoplasmin skin tests were performed in 5 patients. Two were positive, 3 negative.

PPD was performed in 6 patients—positive in 5 and negative in 1.

In 2 patients the skin test was positive for both.

The Nickerson-Kveim reaction was not performed in any of our cases.

There was no spinal cord or skin involvement.

The complaints of our patients were: general weakness, malaise, chills, anorexia, cough, weight loss in most of the cases. One had pain in the left testicle, one had hoarseness.

The physical findings were: one had hepatosplenomegaly, one had hepatomegaly, all had lymph node enlargement of either the cervical, supraclavicular, or axillary nodes. One case had eye involvement, keratitis and nodular iritis.

Two cases showed leukopenia, 6 had eosinophilia of 5 per cent or better, 2 had reversal of the A/G ratio, 2 had hypercalcemia.

Sputum examinations were negative for acid-fast bacilli and fungi.

X-rays: All had hilar lymph node enlargement. One had scattered pulmonary infiltrations. Only one showed cystic change in bones of the hands, consistent with sarcoidosis.

One patient had involvement of the pituitary gland, manifested by diabetes insipidus, pituitary myxedema and testicular atrophy. In 1945 this patient had erythema nodosum, in 1951 examination of a lymph node was typical of Boeck's sarcoidosis. He responded to cortisone. In 1956 he was again readmitted because of intractable thirst. He had a thick skin, rare hair, gynecomastia, hepatosplenomegaly. Radioactive iodine uptake was low, but after administration of thyroid stimulating hormone, it became elevated, showing that the myxedema was of pituitary origin. The Hickey-Hare test was positive for diabetes insipidus. Testicular biopsy showed atrophy. The patient showed a dramatic response with Pitressin. (This case has been described previously.)²

Lymph node biopsy was performed at least once

* From the Veterans Administration Hospital, Veterans Administration Consolidated Center, Wadsworth, Kansas.

Presented at the Kansas Regional Meeting, American College of Physicians, Topeka, Kansas, March 3, 1961.

in every case and was found to be typical of sarcoidosis with giant cells, epithelioid proliferation, lymphocytic infiltration, and absence of necrosis. Asteroid bodies were present in one patient, who had generalized sarcoidosis. No case had Schaumann bodies.

Sarcoidosis can be familial.³ It has been reported in siblings⁴ and identical twins.⁵ It can involve any organ. Skin and eye involvement are frequent, as the original name Besnier-Hereford implies. It occurs in co-existence with periarteritis nodosa;⁶ histoplasmosis;⁷ cryptococcosis;⁸ involvement of the myocardium with sudden death;⁹ involvement of the kidney (causing nephrocalcinosis and hypercalcemia);¹⁰ involvement of the liver (causing portal hypertension, even bleeding esophageal varices).¹¹ The central nervous system,¹² pituitary,² parathyroids,¹³ muscles,¹⁴ can also be involved.

Jaundice is rare,¹⁵ as is joint involvement.¹⁶

Sarcoidosis has been reported to be 12 to 17 times more prevalent among Negroes than whites.¹⁷

Studies have been conducted to find a specific element responsible for the higher incidence of sarcoidosis in certain areas, since Martin¹⁶ reported pine pollen was present in the sputum of some patients. The concentration of cases was found to correlate best with the pine tree forest distribution in the United States. This might also explain the relative frequency in Norway and Sweden's exclusively white population.

An antigen prepared from this pine pollen extract produced a delayed type reaction in guinea pigs previously sensitized with injections of pine pollen. Tuberculin positive guinea pigs reacted also to the antigen.

Lindner and co-workers injected pine pollen into the spleen of rats. All showed, after two weeks, lesions simulating sarcoidosis in the spleen, and granulomatous lesions in the lungs.

The incidence of tuberculosis coexisting with sarcoidosis varies from 3.3 per cent to a high figure of 25 per cent.¹⁹ In our series there were none.

It has been stated that in sarcoidosis the tuberculin skin test is usually negative and in only 5 per cent to 15 per cent of the cases the first strength PPD test is positive, and that approximately 35 per cent of patients with sarcoidosis react to the 2nd strength tuberculin skin test.²⁰

This has not been our experience, inasmuch as in 5 of 6 cases of proved sarcoidosis 2nd strength PPD was positive. Tuberculosis was definitely ruled out in those cases by means of smear, guinea pig inoculations, and biopsy of the involved glands. We do not think that the often made statement that positive reaction to 2nd strength PPD will rule out sarcoidosis is correct.

Positive skin reaction is a manifestation of an allergic response of a disease belonging to the hypersensitivity group.

It is possible that in sarcoidosis there is a failure to develop antigen. This is not limited to tuberculin reaction alone because these patients react also less to mumps, trichophyton and oidiomycin skin tests. On the other hand, this failure to develop antigen is not limited to sarcoidosis alone because other diseases, like Hodgkin's disease, also have impaired immunologic reaction.²¹

Three of our cases illustrate the relationship of sarcoidosis to hypersensitivity. In the first case there was erythema nodosum. The second showed marked hypersensitivity to dust, milk and milk products. This does not imply that sarcoidosis is a form of allergy or occurs in allergic people, but rather that sarcoidosis may be a response to many stimuli. This includes also malignancy, as shown in the third patient.

The increase in gamma-globulin, and alterations of electrophoretic patterns, eosinophilia, the clinical response to cortisone, and the improvement with pregnancy, suggests that there is an altered immunologic reaction in sarcoidosis.

This is also further proved by the Kveim-Nickerson²⁰ reaction. The Kveim reaction, however, is non-specific because the same reaction can be elicited in a normal subject, as well as in a patient with sarcoidosis, by many other irritating stimuli. It seems that the substance responsible for this reaction is a phospholipid. It is admitted by some authors that the presence of sarcoidosis cannot be proved by the Kveim test.

It is agreed by all the authors, even those who had positive responses with the Kveim test, like Nelson, that the latter reaction has its obvious limitations as a means of diagnosis. It would be useful only in those rare cases where it is impossible to obtain a node for biopsy.

It is possible that the Kveim test might contribute to the concept of sarcoidosis by a process which involves antigen body reactions.²² The chemical complexes contained in the antigen are still unknown, which makes the understanding of the nature of the altered tissue reactivity on the part of the host difficult to understand.

We think that the Kveim test is not practical. It is difficult to obtain a fresh reagent of standardized potency when needed. The Kveim reaction is not specific as there are many false negatives.

The granulomatous reaction is a response of a foreign agent introduced either from the outside or produced within by modification of some normal structure of the body.

Sommers thinks an abnormal antibody synthetic process by mononuclear cells with evidence of in-

creased intracellular lipoid-protein complexes may play a role in the pathogenesis of Boeck's sarcoid.

Barrie thinks that virus might play a role in the etiology of sarcoidosis.

We think that it is an antigen antibody reaction, due to hypersensitivity from an unknown stimulus, in susceptible persons.

The classification of cases as "sarcoid," meaning an isolated sarcoid-like granuloma, and "sarcoidosis," meaning generalized systemic disease with sarcoid granulomas in many organs, is not justified in our opinion. It is, even with the microscope, rather difficult to make this differentiation.

Engle states that it is difficult to clearly define the lesions of sarcoid and sarcoidosis because they might all be part of the same lesion which forms a widespread spectrum.

It is also important in the histological examination of granulomas to distinguish the age of the granuloma, because, as Barrie stated, sarcoidosis goes through the state of diffuse inflammation, cell proliferation leading to the formation of epithelioid cells, and hypertrophy of epithelioid cells to form localized cell aggregates.

Israel states that the diagnosis of sarcoidosis should be rather a clinical one and the greater the number of clinical findings present, like negative tuberculin reaction, hyperglobulinemia, hypercalcemia, involvement of mediastinal lymph nodes, eyes, skin, including erythema nodosum, bones of hands and feet, liver and spleen, lacrimal or parotid glands, heart, pituitary gland, and epithelioid tubercles in a biopsy specimen, the more convincing the diagnosis of sarcoidosis.

We feel that if a lymph node biopsy shows epithelioid cells and giant cells, and no necrosis, in absence of any demonstrable etiological agent like beryllium, quartz, cancer, etc., this case should be considered clinically as sarcoidosis.

It is often impossible, except for a complete autopsy, to determine whether only one lymph node or organ is involved, which would then be classed as a sarcoid type lesion, or whether many or all organs are involved and we are dealing with a systemic disease classified as sarcoidosis. What may be called "sarcoid" today, can spread tomorrow and become "sarcoidosis." It is impractical and only of academic and postmortem interest to determine whether there is a so-called sarcoid lesion or generalized sarcoidosis present.

Treatment

All of our patients were treated with Cortisone with improvement. There is an agreement among all authors that steroids are the only effective drug in this condition, supplanting all other treatment, such as

dihydrotachysterol, which is a toxic agent and can cause irreparable kidney damage.

Summary and Conclusions

The diagnosis of sarcoidosis is still difficult and only awareness will lead one to the correct diagnosis. X-ray of the chest is usually the first clue to the presence of this condition. The diagnosis can be definitely established by biopsy of a lymph node or other organ.

The Kveim reaction, which has many false negatives, is not reliable. It is difficult or impossible to obtain, when needed.

Bone involvement is a late manifestation of the disease, occurring in approximately 15 per cent to 25 per cent of the cases.

Elevated serum calcium is found when there is osteoporosis, which is not always present, and a normal serum calcium does not rule out sarcoidosis. A/G ratio changes and an altered electrophoretic pattern are not always present in the early stages of the disease and, therefore, non-specific.

It is our opinion that sarcoidosis is a hypersensitivity disease.

A differentiation between sarcoid type reaction and systemic sarcoidosis is only quantitative and not justified.

Steroids are the only effective treatment in sarcoidosis and all patients should be treated as soon as diagnosed.

The prognosis is not always benign. Sudden death does occur.

References

1. Sones, M. and Israel, H. L.: Course and Prognosis of Sarcoidosis, *Am. J. Med.* 29:84, 1960.
2. Jackson, A. and Hood, T. R.: Sarcoidosis With Involvement of the Pituitary Gland, *Ann. Int. Med.* 49:467, 1958.
3. Merchant, R. K. and Utz, J. P.: Familial Sarcoidosis, *A.M.A. Arch. Int. Med.* 106:64, 1960.
4. Kendig, E. L., Peacock, R. L. and Ryburn, S.: Sarcoidosis: Report of Three Cases in Siblings Under Fifteen Years of Age, *New Eng. J. Med.* 260:962, 1959.
5. Rogers, F. J. and Netherton, E. W.: Sarcoidosis in Identical Twins, *J.A.M.A.* 155:974, 1954.
6. Baggenstoss, A. H., Shick, R. M. and Polley, H. H.: The Effect of Cortisone on the Lesions of Periarthritis Nodosa, *Am. J. Path.* 27:537, 1951.
7. Iverson, L., and Pinkerton, H.: Sarcoidosis and Histoplasmosis, *Am. J. Path.* 28:542, 1952.
8. Shields, L. H.: Disseminated Cryptococcosis Producing a Sarcoid Type Reaction, *A.M.A. Arch. Int. Med.* 104:763, 1959.
9. Stephen, J. D.: Fatal Myocardial Sarcoidosis, A Case of Sudden Death, *Circulation* 9:886, 1954.
10. Klatskin, G. and Gordon, M.: Renal Complications of Sarcoidosis and Their Relationship to Hypercalcemia, *Am. J. Med.* 15:484, 1953.
11. Fraimow, W. and Myerson, R. M.: Portal Hypertension and Bleeding Esophageal Varices Secondary to Sarcoidosis of the Liver, *Am. J. Med.* 23:995, 1957.
12. Aszkanazy, C. L.: Sarcoidosis of the Central Nervous

(Continued on page 434)

G-I Cancer

Carcinoma of the Esophagus and the Gastric Cardia

CREIGHTON A. HARDIN, M.D., and
C. FREDERICK KITTLE, M.D.,* *Kansas City*

THE MEDICAL LITERATURE is replete with pessimism regarding surgical resection for carcinoma of the esophagus. Operative excision for cancer of the esophagus is a relatively recent procedure since Ohsawa, a Japanese surgeon, in 1933, and Adams and Phemister, in this country in 1938, were the first to describe transthoracic resection of the esophagus with survival of the patient.

We have reviewed the experiences with carcinoma of the esophagus and esophagogastric junction at the University of Kansas Medical Center from 1949 to 1959. Although long-term survivors were few, a perusal of the results leave us with a feeling of some encouragement. Resection can afford a significant degree of palliation and provide symptomatic benefit by removal of the cancer in this region.

The cardinal symptom of esophagogastric carcinoma is dysphagia. It occurs after a protracted silent period of growth as the lumen of the esophagus becomes compromised. Adjacent vital structures, such as the aorta and bronchus, soon become involved and frequently the primary lesion may be found non-resectable when the patient is first seen.

A total of 69 patients were treated at the University of Kansas Medical Center during the ten year period 1949 to 1959. In these patients the average duration of symptoms was three months with a range of six weeks to ten months. Weight loss was a prominent feature, averaging about 15-20 pounds. Sixty patients were male and nine were female. Anatomic locations of malignancies of the esophagus and cardia occurring in this study are listed in Table I.

Six of these patients were considered inoperable at the time of operation. All these six had tracheal or aortic invasion with a primary carcinoma in the middle-third of the esophagus (*Table II*). Of these six patients four were treated with Cobalt-60 radiation, one patient received no treatment, and in one a palliative Duval-Machler plastic tube was inserted to relieve dysphagia. The last patient died 64 days later from erosion and leakage about the site of the tube insertion. The average survival in these six patients was five months with the terminal events of death being hemorrhage or pneumonia.

Although this group is too small to make con-

clusions regarding the palliative effect of X-ray therapy, others have found that the average duration of life after radiation alone is approximately eight months (Krebs, etc.). Gastrostomy was done in one of our patients and did not appear to have any appreciable benefit in prolonging life (Chauncey).

Of the 63 patients subjected to resection, the ages ranged from 40 to 89 with all except three patients being beyond the fifth decade. A total of 11 post-operative deaths took place (*Table III*). In four, leak-

• A review of carcinoma of the esophagus and cardia covering a 10 year period is presented.

• Resection of esophageal malignancy provides palliation and symptomatic relief.

• A staged procedure consisting of resection, cervical esophagostomy, temporary gastrostomy followed by radiation and late esophageal restoration may salvage more patients with esophageal cancer.

age of the anastomosis occurred; in five death resulted from cardiac disease (infarct or congestive failure); one patient died from anemia and one died from pneumonia. Two patients should have been considered inoperable because in one instance of liver involvement (not appreciated at operation) and in the other, massive tracheal extension.

The operative technique consisted of either a left thoracotomy for lesions in the distal one-third of the esophagus with subtotal esophagectomy, or combined thoracic and abdominal incisions with total or subtotal esophagectomy and mobilization of the stomach high into the pleural cavity for lesions involving the middle or upper thirds of the esophagus. The surgical intent of the operating surgeon in the resected cases of adenocarcinoma of the esophagogastric junction was palliative in 13 and curative in six cases. The surgical intent in squamous cell carcinoma of the esophagus was palliative in 38 and curative in 10 cases. The two cases of leiomyosarcoma were resected with curative intent (*Table IV*).

* From the Department of Surgery, University of Kansas Medical Center.

TABLE I
ANATOMICAL LOCATION OF
MALIGNANT LESIONS

| | No. Pts. |
|--------------------------------|----------|
| Cervical Esophagus | 2 |
| Upper Thoracic Esophagus | 5 |
| Middle Esophagus | 25 |
| Lower Esophagus | 18 |
| Cardia | 19 |
| Total | 69 |

TABLE II
AGE AND INOPERABILITY AT
TIME OF RESECTION

| Decade | No. Undergoing Resection | No. Inoperable at Thoracotomy |
|--------|-----------------------------|----------------------------------|
| 40-49 | 3 | — |
| 50-59 | 25 | 3 |
| 60-69 | 21 | 2 |
| 70-79 | 12 | 1 |
| 80-89 | 2 | — |
| Total | 63 | 6 |

Pathological examination of the resected specimens in the adenocarcinoma group showed negative nodes for metastatic tumor in three cases and 16 specimens had positive regional nodes or serosal extension. Six surgical specimens of carcinoma of the esophagus showed absence of metastases to the lymph nodes but this finding did not enhance survival. Forty-two of the specimens had spread to the regional nodes or serosal extension. One specimen in this group had tumor at the proximal line of resection.

Results

Squamous cell carcinoma of the esophagus: Forty-eight patients were resected with eight deaths post-operatively. Of the 40 patients surviving 11 lived for two years after resection, two patients lived three years and 10 months to die from recurrence and one patient lived four years and 10 months and then died of recurrent disease. The average survival of all 40 patients undergoing resection for squamous cell carcinoma was 11 months. Three patients surviving resection are living and free of recurrence to date, at 30, 46 and 47 months.

Adenocarcinoma of the esophagogastric junction: Nineteen patients were resected with three postoperative deaths. Of the surviving patients six patients lived for two years, two patients lived for three years,

and two patients lived for three years before dying of recurrent disease. One patient is still living 10 years after resection. This patient is of interest because eight years after initial esophagogastrectomy, partial pancreatectomy, and splenectomy a left supraclavicular lymph node, positive on histologic examination for adenocarcinoma, was removed. The average survival of 16 patients with resected adenocarcinoma was 13 months.

Leiomyosarcoma of the esophagus: Two patients were resected and died of recurrent disease 37 and 48 months later. Table V depicts graphically the survival rate of all resected cases.

Sweet has reported 17 per cent of his patients alive five years postresection for carcinoma of the lower esophagus and cardia. A 4 per cent survival was observed in the upper esophageal resections and none in the cervical esophagus. Corey reported a 32 per cent three year survival for esophageal cancer in his series. A collective review on resected carcinoma of the esophagus reported 107 five year survivals (Chauncey).

Surgical Management

Resection of a malignancy should encompass the primary growth in all directions and include the region of metastatic spread. Extensive transverse and

TABLE III
HOSPITAL DEATHS—FOLLOWING
ESOPHAGOGASTRECTOMY

| | Squamous Cell Carcinoma | Adenocarcinoma |
|--------------------------|----------------------------|----------------|
| Anastomotic Leak | 3 | 1 |
| Cardiac Complications .. | 3 | 2 |
| Renal Failure | 1 | — |
| Pulmonary Complications | 1 | — |
| | — | — |
| Total | 8 | 3 |
| Occurred 1-35 days | | |

TABLE IV
CANCER OF THE ESOPHAGUS AND
GASTRIC CARDIA

| Type of Lesion | No. of Cases | Surgical Intent | |
|----------------------|--------------|-----------------|----------|
| | | Palliative | Curative |
| Adenocarcinoma | 19 | 13 | 6 |
| Squamous Cell | | | |
| Carcinoma | 48 | 38 | 10 |
| Leiomyosarcoma | 2 | — | 2 |
| | — | — | — |
| Total | 69 | 51 | 18 |

Table V SURVIVAL RATE AFTER RESECTION

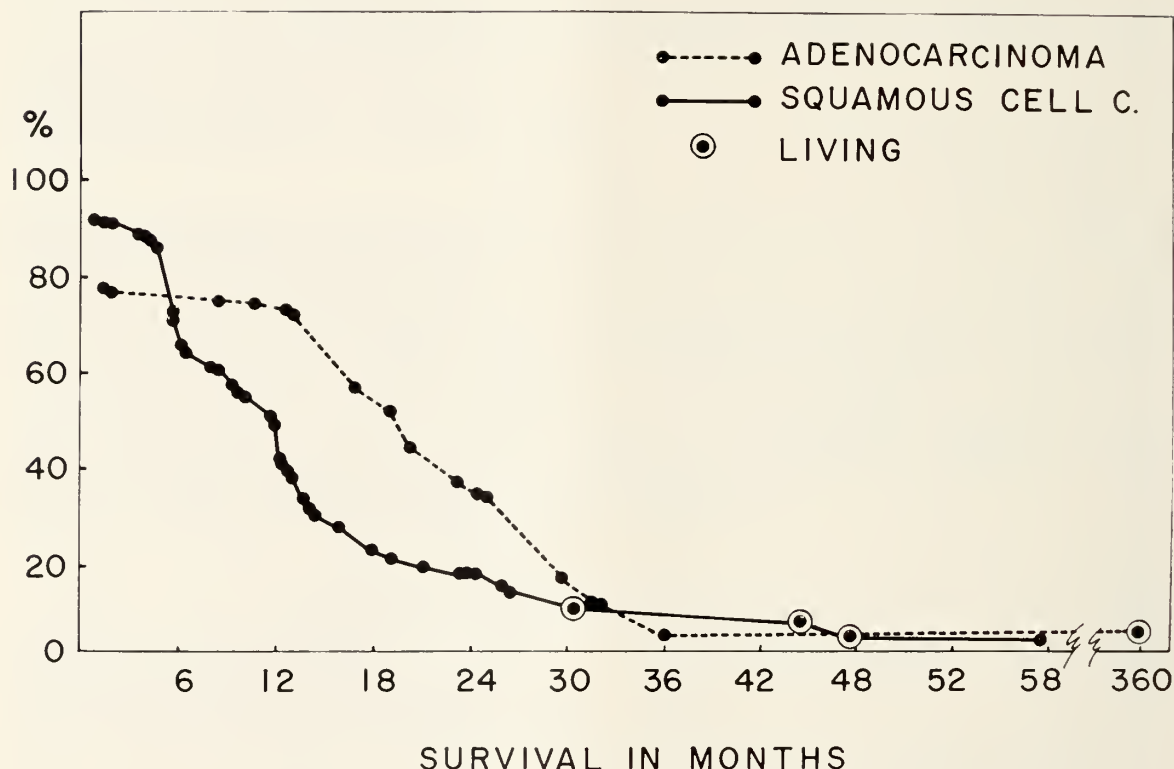


Figure 1.

lineal spread of esophageal carcinoma is frequently present by the time of operation and because of this marked tendency for submucosal and external spread many have advocated total esophagectomy. Early extension into the aorta, mainstem bronchi, or trachea may render a patient nonresectable. In resectable cases a staged procedure may result in a more adequate resection of the carcinoma, better palliation or cure and less morbidity. Total esophagectomy, temporary gastrostomy, and cervical esophagostomy would constitute first stage procedure. Adequate radiation could then be given to the mediastinal region with later restoration of esophageal continuity by the colon. This has as advantages the nutritional help to the patient after the first stage massive radiation to the carcinomatous area, and reconstruction as permitted by the patient's general condition.

References

1. Ohsawa, T.: The Surgery of the Esophagus, Arch. japanische Chir., 10:650, 1933.
2. Adams, W. E., and Phemister, D. B.: Cancer of the Lower Thoracic Esophagus, J. Thor. Surg. 7:621, 1938.
3. Krebs, C., Nielson, H., and Anderson, P.: Rotation Treatment of Cancer of the Esophagus, Acta. Radiol., 32:204, 1949.
4. Chauncey, L. R.: Results of Treatment of Cancer of the Esophagus and Gastric Cardia, Arch. Surg. 68:872, 1954.
5. Sweet, R. H.: Present Status of the Treatment of Cancer of the Esophagus, Arch. Surg. 69:1, 1954.
6. Corey, J. M. and Clagett, O. T.: Carcinoma of the Lower Portion of the Esophagus and Cardia of the Stomach, Ann. Surg. 142:2, 1955.

Sarcoidosis

(Continued from page 431)

- System, J. of Neuropathy & Exper. Neurology, 11:392, 1952.
13. Burr, J. M., Farrell, J. J. and Hills, A. G.: Sarcoidosis and Hyperparathyroidism With Hypercalcemia, New Eng. J. Med. 261:1271, 1959.
14. Harvel, J. C.: A Myopathy of Boeck's Sarcoid, Am. J. Med. 26:356, 1959.
15. Wagoner, G., Freiman, D. G. and Schiff, L.: An Unusual Case of Jaundice in a Patient With Sarcoidosis, Gastroenterology 25:574, 1953.
16. Utz, J. P., Van Scott, E., Bernton, H. W., Edgcomb, J. H., Bunim, J. J., Bell, N. H. and Kaufman, H. E.: Sarcoidosis: Clinical Staff Conference at the National Institutes of Health, Ann. Int. Med. 51:1356, 1959.
17. Middleton, W. S.: The Riddle of Sarcoidosis (Hutchinson-Boeck Granulomatosis), Ann. Int. Med. 41:465, 1954.
18. Lindner, A., Naik, R., Kutkam, T. and Hammarsten, J.: Experimental Induction of Sarcoidosis in Rats With Pine Pollen, Annual Medical Research Conference, Veterans Administration, Nov. 29, 1960, Cincinnati, Ohio.
19. Riley, E. A.: Boeck's Sarcoid, Am. Rev. Tuberc., 62:231, 1950.

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Committee REPORTS

Defective Hearing

A Plan for Reporting Defective Hearing in Children

V. R. MOORMAN, M.D., *Hutchinson, Kansas, and*
JAMES McLEAN, M.A., *Lawrence, Kansas*

A SERIES OF six articles, the first of which appeared in the December 1959 issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY, was prepared by Dr. C. W. Armstrong for the Committee on Conservation of Hearing and Speech of the Kansas Medical Society. These articles described the types of hearing losses that one encounters, the diagnosis of the problems and the treatment. The Committee on Conservation of Hearing and Speech in conjunction with representatives from the Kansas State Board of Health and the Kansas State Department of Public Instruction has devised a plan which will expedite communication between the school system and the physician in the management of defective hearing in school children.

In interdisciplinary contacts the fields of interest tend to overlap and sometimes are in conflict. The responsibility of the parents to provide medical care, both diagnostic and therapeutic, is basic to the program and this responsibility must not be relegated to the school system. On the other hand the Department of Public Instruction has a responsibility to provide the maximum education that each pupil can master

to the extent of his capabilities. Since the physical attributes of the child enter into his ability to learn, the school system becomes involved in certain screening programs which in this instance concern his ability to hear. The responsibility of the physician is to provide diagnostic hearing tests and therapy for those with hearing losses. The physician also has a

The background, criteria and method for an interchange of information and recommendations concerning the child with a hearing loss between the school system and the physician have been presented.

responsibility to make recommendations to the school official as well as to the parent as to ways in which the child with a hearing loss can be aided to hear and learn.

Qualifications of School Hearing Testers

Standardization of hearing tests, indications for referrals, and communications are necessary to have order in a potentially chaotic situation. Since the qualifications of those administering hearing tests in the school system vary widely, the Department of Public Instruction has set up various categories of testers. Since it is necessary for the physician to know

Editor's Note: This article has been prepared by V. R. Moorman, M.D., Hutchinson, Kansas and Mr. James McLean, Instructor of Speech Pathology, University of Kansas, Lawrence, Kansas for the Committee on Conservation of Hearing and Speech. The committee members are J. A. Budette, Chairman, C. W. Armstrong, H. R. Draemel, R. E. Bridwell, E. S. Gendel, C. L. Gray, W. P. McKnight, E. E. Miller, Ruth Montgomery-Short, V. R. Moorman, W. D. Pitman, G. O. Proud, R. E. Riederer and M. J. Ryan.

the competency of the tester, the categories of hearing testers and their educational requirements as determined by the Department of Public Instruction follow.

1. THE HEARING CONSERVATIONIST will have a bachelor of arts or master of arts degree with a major in speech correction and/or audiology. He will also have approval as to subject and field requirements of the Kansas State Department of Public Instruction for a Hearing Conservationist.

The formal education includes a knowledge of the anatomy and physiology of the hearing mechanism, a thorough knowledge of the hearing function and its deviations, knowledge of the functional implications of hearing loss and the clinical management of communication problems resulting from a hearing loss. The Hearing Conservationist will be competent in the administering of clinical tests of audiometry including air conduction threshold, bone conduction threshold, masking, speech reception thresholds, discrimination tests as well as other diagnostic tests of hearing function. He will understand referral criteria and procedures.

2. THE SCHOOL AUDIOMETRIST may qualify for certification by attending a one week workshop or a standard course in audiometrics at a recognized university or training center. In place of a formal training period he may submit to an examination and demonstration of the required competencies.

The School Audiometrist will have a knowledge of the rationale of audiometric screening and air conduction tests with a demonstrated competency in the performance of the tests. He will understand the rationale of hearing function and will know the types, degrees and manifestations of hearing losses. A knowledge of the proper referral criteria and procedures will be expected. It will be noted that the bone conduction tests have been omitted because of the noise level in the school testing site.

3. THE HEARING SCREENER may qualify with a two day workshop that includes the practical mechanics in performing hearing tests.

He will have a knowledge of the rationale of audiometric screening and will demonstrate an ability to administer pure tone sweep tests in a standardized fashion. Knowledge of the audiometer in regard to its function and its use in the performance of hearing tests is necessary. The proper referral criteria and procedures will be understood.

From these criteria it is obvious that school nurses do not qualify as Hearing Conservationists. The Hearing Conservationist is a person trained in audiology, and whose full responsibility lies in administering clinical tests of hearing. Nurses as well as other individuals are frequently involved in hearing testing and do perform sub-clinical audiometric tests. For this reason the categories of School Audiometrist and

Hearing Screener have been developed. Approval at these levels will assure some training appropriate to the duties and will provide some protection for those doing testing.

All individuals who test hearing in public schools should attempt to qualify at the School Audiometrist level. If this is not feasible, work toward the Hearing Screener level of approval is considered appropriate for duties limited to screening tests. It is expected that all school nurses will qualify themselves at the School Audiometrist level by taking either a standard college course in audiometrics or by participation in a one week workshop designed specifically for this purpose. Such workshops will be offered in various areas of the state as extension programs of some Kansas universities.

If the results of the hearing tests performed by school personnel as well as the results of the tests performed by physicians along with their recommendations are accumulated in one central repository, a mass of useful data will soon be available for study and analysis. From this material a significant survey of the hearing of Kansas school children is possible and would provide a true incidence of hearing handicapped children. It would help determine whether better educational facilities are needed, and the individual tests will discover the student handicapped by poor hearing who may benefit from adequate medical and surgical care.

Card Report System

To accomplish these goals it becomes evident that a means of communication to transmit referral requests, recommendations of the physician, and data to the central repository is essential. Toward this goal a report system has been devised (*Figure 1*). The system consists of four attached, preaddressed post cards. The first card will contain the results of the screening test performed at school. At the bottom of the card is an information release form for the parent or guardian to sign. This card may be kept on file by the physician. The second card relates instructions to the physician. This card is attached to the third card in such a manner that when they are folded together and secured with a staple, the recommendations to the school will be covered and confidential. The data on the third card indicates the diagnosis, the permanency of the condition, the status of the therapy and suggestions for classroom help for the handicapped student. The fourth card, on which the physician records his audiometric findings and diagnosis, will be sent to the Department of Public Instruction. The department will act as the central collection agency for the data which will be available to qualified investigators.

The prime purpose of the form is to improve communication between the school referring agent and

School _____ Date _____
 _____ has been given two hearing tests which indicated the possibility of a hearing loss. It is recommended that you take your child and this report to your physician as soon as possible.

| | 250 | 500 | 1000 | 2000 | 4000 | 6000 | 8000 |
|-------|-----|-----|------|------|------|------|------|
| Right | | | | | | | |
| Left | | | | | | | |

I hereby authorize the release of the results and recommendations from this examination to school officials and the use of this data in any statistical studies that may be desirable.

Parent or Guardian (Please sign) _____

TO THE PHYSICIAN:

Audiometric evaluations in school indicate the hearing loss noted above. This loss meets the criteria for medical referral set by the Kansas Medical Society. Will you please:

1. Complete the following two cards.
2. Return the middle card to the school referring agent whose name and address appear on the front.
3. Return the last card to the State Division of Special Education for compilation of state-wide data on hard-of-hearing children.

Please address questions about the tests to the school referring agent.

Form: 137 Kansas State Department of Public Instruction
 Approved by: Kansas State Board of Health and the Kansas Medical Society, Hearing Conservation Committee

Fold card on dotted line and staple before returning to school.

Name _____ Age _____
 School _____ Date _____

- (1) Type of loss: No loss
 Perceptive
 Conductive
 Mixed
- (2) Status of loss: Permanent
 Temporary
- (3) Therapy: Completed
 Continuing
- (4) Suggestions:
 Special seating in classroom
 Amplification (hearing aid)
 Speech reading (lip reading)
 Recheck hearing in _____ months

| |
|--|
| |
| |
| |
| |
| |
| |
| |
| |

| Yes | No |
|-----|----|
| | |
| | |
| | |
| | |

Physician _____

Name _____ Age _____
 Address _____ Sex _____
 School _____ Date _____

| | 250 | 500 | 1000 | 2000 | 4000 | 6000 | 8000 |
|----------|--------|-----|------|------|------|--------------|------|
| Rt. Air | | | | | | | |
| Rt. Bone | XXXXXX | | | | | XXXXXXXXXXXX | |
| Lt. Air | | | | | | | |
| Lt. Bone | XXXXXX | | | | | XXXXXXXXXXXX | |

Other tests:

Diagnosis:

Physician _____

the physician. An audiometric testing program is intended not only to identify children who need medical attention because of hearing losses, but also to ascertain the extent to which such losses will require special educational considerations. Identifying a hearing problem and recommending medical examination is only one part of the program. To fulfil its goal of making special educational adjustments, the school must also receive a report of the physician's conclusions and some indication of the nature, degree and prognosis of the hearing problem which prompted the referral.

Criteria of Referral

The criteria for referral of the child with a hearing problem have been standardized and are arbitrary. This is a necessity in order that referrals will be meaningful and protective for the child. If there is to be a margin of error, it must be protective for the child and not the school referring agent or the physician. The criteria allow for over referral of children with suspected hearing losses rather than to risk missing a child who may need help.

When there is a minimal loss, as measured by an audiometer, of 20 decibels in two tones in one ear or a loss of 30 decibels in one tone, the school referring agent will record the data on the referral form and request the parents to consult the family physician. After the physician has completed his examination, he will indicate his findings and his recommendations by checking the appropriate squares. If the physician finds a perceptive hearing loss for which no therapy is needed but the course of the hearing needs to be followed, the child may be placed on an active hearing list by the school referring agent. He will have repeat hearing tests at six month intervals, but will not be referred back to the physician unless a further loss of hearing occurs. If the physician finds a temporary loss that can be corrected, further tests will not be performed by the school agent except upon request of the physician or on a routine survey basis.

These criteria have been formulated and approved by physicians. There will probably be some rejection of these criteria by individual physicians. Since these criteria will send to physicians many children whose hearing loss is recognizable only by an audiometric test, some physicians will report to the parent that there is no hearing loss. This is unfortunate but stresses the necessity for careful, meticulous audiometric evaluation by the physician. Otherwise children for whom early treatment could prevent a lifelong hearing impairment will receive inadequate treatment.

Sarcoidosis

(Continued from page 434)

20. Israel, H. L. and Sones, M.: The Diagnosis of Sarcoidosis With Special Reference to the Kveim Reaction, *Ann. Int. Med.* 43:1269, 1955.

21. Sones, M. and Israel, H. L.: Altered Immunologic Reactions in Sarcoidosis, *Ann. Int. Med.* 40:260, 1954.

22. Nelson, C. T.: The Kveim Reaction in Sarcoidosis, *J. of Chronic Dis.* 6:158, 1957.

23. Hollander, A. and Sommers, S.: Histochemical Comparison of Boeck's Sarcoid With Other Cutaneous Granulomas, *A.M.A. Arch. Derma.* 81:944, 1960.

24. Barrie, H. J. and Bogoch, A.: The Natural History of the Sarcoid Granuloma, *Am. J. Path.* 29:451, 1953.

25. Engle, R., Jr.: Sarcoid and Sarcoid-like Granulomas, A Study of Twenty-Seven Post-Mortem Examinations, *Am. J. Path.* 29:53, 1953.

Radiology

Case of the Month—Eosinophilic Granuloma

Edited by COLVIN AGNEW, M.D., Kansas City

Radiologic Description

Posterior to the left coronal suture there is an osteolytic lesion measuring 1.5 x 5 cm. The anterior margin extends almost to and parallels the coronal suture. The contour is not circular but roughly rectangular with an irregular posterior margin which could be compared to a "creeping erosion." The inferior margin has a relatively sclerotic border. Punctate or nodular sequestra are not demonstrated. There are no fracture lines. There is no periosteal reaction. There are no rib lesions demonstrated on the chest x-ray examination.

History

This 6 year old school boy had a collision with another boy, bumping heads. Although not unconscious he became sick and vomited. Two weeks later he began having daily headaches. These headaches could be induced or aggravated by touching his head. It could be relieved by aspirin or resting. Two weeks ago (4 weeks after the onset of headaches) a mass began to appear above his left ear. By the time he was admitted six weeks after the head injury, opening and closing his mouth was painful. The abnormal physical finding was limited to a tender 3 cm mass above the left ear. There was a sense of warmth but erythema was not noted. The laboratory data was normal. The radiologic consultation offered several explanations for the osteolytic lesion in the skull. An excisional biopsy operation was performed with a preoperative diagnosis of eosinophilic granuloma.

The pathologist reported the section consists of a large number of histiocytes and lymphocytes interspersed with numerous eosinophils. Areas of recent hemorrhage are seen as well as red cell filled endothelial spaces. Small areas of necrosis are noted. A few large multinucleated giant cells are seen with abundant cytoplasm and uniform nuclei. One year later the surgical defect had been filled and felt solid to palpation.

Differential Diagnosis

The radiologic differential diagnosis of solitary skull lesions in children is rather limited. Consideration should be given to the following more likely

possibilities: Hemangioma, cholesteatoma, eosinophilic granuloma, and osteomyelitis.

When *hemangiomas* occur in the calvarium, it is usually a solitary lesion which retains a fine network of trabecula. In profile there may be some overgrowth but there is no periosteal reaction. There is little or no eburnation of the margins. Ectodermal cell arrests may cause cholesteatoma (epidermoids) and may give rise to a sharply demarcated osteolytic skull defect. The margins usually show eburnation; there may be flecks of calcific density interspersed in the lipoid material.

Osteomyelitis may follow a penetrating wound or as a complication of frontal sinusitis. The margin may be irregular with patches of bone containing various amounts of calcium, producing a mosaic. In time the margins may be sclerotic and periosteal reaction present. The defects may be visible long after the infection has been controlled.

Leptomeningeal cysts (post-traumatic) may present in time as a defect in the calvarium. There is usually an associated fracture.

Meningoceles and *encephaloceles* are midline structures and there may be a significant associated defect in the calvarium. *Sinus pericranii* is also a midline defect, but produced by a large vessel feeding a compressible soft tissue mass. Usually the cranial defect is not detectable.

Eosinophilic granuloma produces an osteolytic lesion in bone which usually has a smooth margin which is not sclerotic and without periosteal reaction. There is usually total osteolysis so that there are no trabecula remaining in the lesion.

The differential diagnosis can be narrowed when the total clinical picture is taken into consideration. The admitting diagnoses on this boy included osteomyelitis, leptomeningeal cyst and eosinophilic granuloma. However, it is apparent that to establish a diagnosis material will have to be submitted for histologic study.

Discussion

Eosinophilic granuloma is a relatively new disease entity.^{3, 5} There is still qualified curiosity exhibited about its etiology, nosology and pathologic course. In 1941 before the Annual Meeting of the American Association of Pathologists and Bacteriologists, Far-

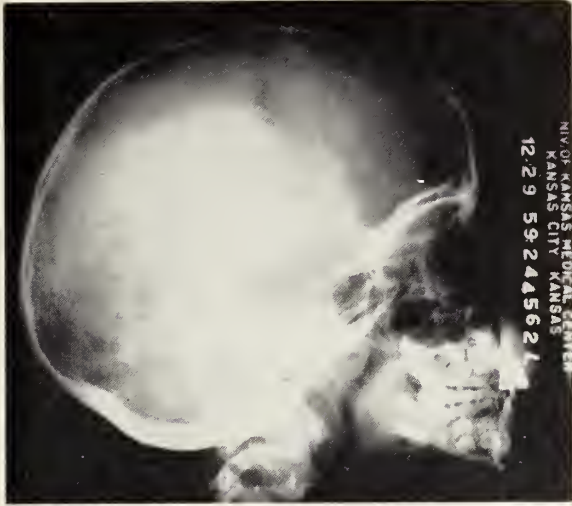


Figure 1. Extensive osteolysis extending posteriorly from the left coronal suture revealed at the time of hospital admission.



Figure 2. Enlargement of the defect resulted from the complete removal of the lesion.

ber² linked eosinophilic granuloma, Hand-Schüller-Christian disease and Letterer-Siwe. There appears to be a tendency in the United States to accept this concept and lump these three together into a group of non-lipoid reticuloses. The common denominator is a microscopic appearance, however, the clinical course is quite different. Eosinophilic granuloma is a benign disease. The lesions rarely recur—whether treated by curettement or radiation. It has been suggested by Aegerter¹ that eventually the lesion becomes completely fibrosed. It is not entirely clear whether his observation is based upon a spontaneous evolution or the outcome of a treated lesion.

The proper treatment should be predicated on a well established diagnosis. Frequently the lesion is quite accessible so that the complete surgical excision is possible. When one is faced with an eosinophilic granuloma in a less accessible site or where complete removal is not obtained—radiation therapy is indicated. Eosinophilic granuloma has been controlled with very modest doses of radiation.

Complications or less than satisfactory results were reported in only three of twenty-eight cases recently reviewed by McGavran and Spady.⁴ Case 9 received 3500 r tumor dose originally. About two years later there was a recurrence in the scar. This was treated with 1800 r. The patient is alive and well 13 years later (case 9). A varus deformity resulted, which was mild, following the pathologic fracture (case 19), and a fracture occurred through the biopsy site which healed very satisfactorily (case 5). Thus, the management of these patients primarily with surgery is recommended. Radiation therapy is reserved for the inaccessible or incompletely removed lesion.

References

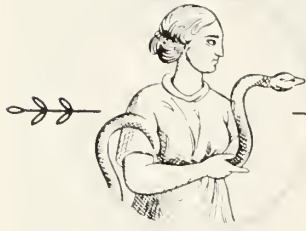
1. Aegerter, E. and Kirkpatrick, J. A.: Orthopedic Diseases, W. B. Saunders Co. Philadelphia, 1958.
2. Farber, S., Green, W. and McDermott, L. J.: The Nature of "Solitary or Eosinophilic Granuloma" of Bone, *Amer. J. Path.* 17:625, 1941.
3. Lichtenstein, L. and Jaffe, H. L.: Eosinophilic Granuloma of Bone With Report of a Case, *Am. J. Path.* 16:595, 1940.
4. McGavran, M. H. and Spady, H. A.: Eosinophilic Granuloma of Bone. A Study of 28 Cases, *Jour. Bone & Joint Surg.* 42-A:979, 1960.
5. Otani, S. and Ehrlich, J. C.: Solitary Granuloma of Bone Simulating Primary Neoplasm, *Amer. J. Path.* 16:479, 1940.

Several recent issues of The JOURNAL have included a case report in the field of radiology. The Editorial Board feels that these case reports are interesting and instructive, and invites contributions from radiologists anywhere in the state. Though it may not appear each month, it will appear whenever suitable material is available.—Ed.

Fact or Fallacy?

The best way to take care of your ears is to leave them alone. True. The golden rule is: never put anything into your ear smaller than your elbow. Consult a physician at the first sign of trouble—dizziness or ringing in your ears.

After all, you owe your ears something for all they do for you.



Medical HISTORY

Dr. J. T. Axtell—A Tradition

THERON GLOVER SILLS, *Kansas City**

The life of Dr. J. T. Axtell presents an interesting picture from several aspects. On one side there is the record of a dedicated man and his accomplishments in the fields of medicine, agriculture, and business. Another side of this man is reflected in a somewhat more subtle light. Throughout his active life and its connection with almost every phase of the community being in early Newton, his philosophy of life was transmitted and incorporated into the young town. His educational and spiritual leadership, the example of his life and his representation as the traditional "Country Doctor" has left with the townfolk of Newton today an atmosphere of his presence.

It is not within the scope of this paper to present a complete biography of Dr. Axtell. Such a work will be accomplished when the author has gathered sufficient material. Rather, this paper should put forth the major contributions of this man in his several fields of endeavor and show somewhat the impact his career left on the community of Newton.

There is very little written material on Dr. Axtell and his personal diary is believed to have been destroyed following his death. Because of this, I was fortunate to have as sources of information persons who knew and remembered Dr. Axtell. I am especially indebted to Dr. John L. Grove, his son-in-law, who entered practice with him in 1906 and through a long association with Dr. Axtell has been able to provide much of the material included in this paper.

IN MAY OF 1878, a young man riding a white horse came to Newton, Kansas, filled with hopes of adventure and seeking employment. In this community, the young man was destined to find his place and formulate the goals which would guide his life.

John Thomas Axtell was born in Roseville, Illinois, on August 11, 1856, the sixth child of John Milton and Lydia Long Axtell. When nine years of age, he moved with his parents by covered wagon to Anderson County in Kansas where his father, lured as were many others by the hope of finding a better life in the new territory, had purchased some farm land. He attended school in Garnet and upon graduation went to Kansas University briefly after which he returned and taught school for three years in Central City and other communities close to Garnet.

The reasons for his deciding to stop in Newton are hard to ascertain. It is known that some friends of the family were located on a farm to the south of town and perhaps this bore some influence. The young Axtell obtained various harvest jobs lasting through the summer and in the fall he resumed his teaching activities by obtaining a position in the school in Newton. An incident which occurred during this first summer perhaps influenced him toward his later decision to take up the study of medicine. During the process of digging a well, the bucket used for hauling dirt out of the hole was inadvertently let slip back into the orifice and the end point of its descent was marked by the top of John's head. The resulting scalp wound was closed in a bungling manner by one of the local physicians, perhaps pointing out rather sharply the need for more competent practitioners in that area. In later years, Dr. Axtell wore a toupee to cover the affects of this encounter.

During his first winter of teaching in Newton, John decided to start the study of medicine and, as was the practice in those times, entered the office of one of the doctors in town, Dr. J. D. Hartley, to read medicine. These times were busy and found him occupied with his teaching and trying to gain some knowledge in his new field of endeavor. Dr. Hartley was a wily man and made good use of the young student, making him do most of the errands and using him as a sort of general handyman. On cold winter

* Theron Glover Sills is a fourth year medical student at the University of Kansas Medical Center.

evenings when Dr. Hartley would return from a call (he and John shared the same bed) he would say, "Axtell, you are on my side of the bed, move over," and get him out of the warm nest. Another little trick Dr. Hartley would use was to have John call him out of meetings which he didn't want to attend by paging him. The good doctor would solemnly rise and slip out of the gathering.

Later John obtained rooming quarters in the home of Icabod Chase, and here became acquainted with the daughter of the family, Lucena, who was later to become his wife. The following summer, in order to obtain enough money to enable him to go to Ann Arbor to study medicine, he took employment with a firm selling maps. This job carried him over a wide range of territory in surrounding states and his success with it was sufficient to enable him to matriculate at the University of Michigan in the fall of 1880. Here he organized a medical student's club, hiring a woman to clean the rooms and do the cooking. He did the managing and buying of supplies and, in return, received his room and board free.

Returning to Newton in the fall of 1881, he resumed teaching and continued his medical studies. This winter evidently found the young man with more free time and his courtship of Lucena Chase, who was one of his former pupils, progressed to the place where he found the courage to ask her to become his wife. The ceremony took place in the home of her father on May 18, 1882. Immediately following the ceremony, the young couple moved to Hunnewell, where John had formed a partnership with Mr. G. W. Kates, and together they had purchased a small drugstore.

This town was at the time an important shipping point for Texas cattle and lay close to the border of the Indian Territory. If the wildest days had passed in Newton, this was certainly not the case in Hunnewell. Mrs. Axtell recalls that the cowboys seemed almost a steady stream pouring into town. They would ride into the main street shouting and firing their weapons into the air, tired from their long drive with the cattle and more than ready for a little fun and excitement. Although they were generally friendly and were mainly looking for a good time, the inevitable results of drink and high spirits would take its toll, and Dr. Axtell's practice here proved constant and lucrative.

An instance is remembered to have occurred during this summer when the doctor was awakened during the night by a group of cowboys who had ridden up to his house. They demanded that Dr. Axtell accompany them back to their camp where they had a member of their party who had suffered a fractured leg when his horse had stumbled in a gopher hole. The hesitancy on the part of the young doctor to leave his wife in the middle of the night in such wild country

must have been overcome somewhat by the fact that these men were carrying their sidearms. The results of his night's work must have satisfied these men for he was returned safely the following morning.

The end of this eventful summer found Dr. Axtell ready to return east for further medical study. Financially in better state, the couple left the cowtown and the doctor enrolled at Bellevue Hospital Medical College in New York, a recognized mecca for the study of surgery. Upon obtaining his medical degree, he returned to Newton and went into partnership with an old friend, Dr. J. D. Sherrick. This relationship lasted just a few months for Dr. Sherrick decided to move to another state. Following this Dr. Axtell established a partnership with Dr. W. C. Nolder.

By 1883 Newton had partially recovered from the hectic preceding decades. Several of the many saloons and dance halls had disappeared from the main street but some of them, the Alamo, the Mint, and the Gold Room were still doing a thriving business. The cowboy and his temporary girl friend were not so much in evidence, for as the railroad had moved on, so had most of its accompanying transient followers. Farm population was replacing the railroad labor and cowboy citizenry. Newton's elite families took the train to Florence to enjoy the food and see the Harvey Girls in the newly opened Harvey House at that point. Ever increasing office practice, home calls, and surgery soon led Dr. Axtell to the conclusion that he needed a workshop where he could enjoy better facilities and care for several patients instead of the few that he could visit at home. Such a place would also make the proper nursing and care of his surgical patients easier.

Dr. Axtell returned once again to the Bellevue Hospital for graduate study and, on his return in early 1887, he purchased three lots and a story and a half building on East Broadway. Consummating the transaction with satisfactory I.O.U.'s, he launched the Axtell Hospital enterprise. This project marked the establishment of the fifth general hospital in the state of Kansas and the first hospital established by a private practitioner. This first frame building had rooms for six patients and an operating room, a bathroom, nurses' dormitory and a kitchen in the basement. Gas mantle lamps soon replaced the coal oil lamps. Each room was kept in immaculate condition and had a wash basin and pitcher, for cleanliness was a quality Dr. Axtell always stressed.

At this same time the announcement of the opening of a nurse's training school was made, although it was not until the following year that formal classes were held. This may be well considered the first such school in the state. Instruction was given principally by Dr. Axtell aided by medical journals until 1891 when the course was lengthened to two years and

Clara Weeks' *Practical Nursing* was used as the textbook.

Before there was any recognized nurses' organization in the state, nurses at Axtell Hospital were given systematic training in didactic as well as the practical art of nursing. The practical art in those days consisted of room care, bed making, and all the details of nursing the patient. Dr. Lucena Axtell and Dr. F. L. Abbey, who graduated from the Kansas Medical College in 1895, were of great help in establishing and training the nursing personnel for the hospital.

These early nurses had not only patience and endurance but also a true attitude of devotion, for their hours were not defined and their arduous services were largely paid for by the training furnished by the school of nursing. Their quarters were meagerly furnished and each room was shared by two or three girls. One thing, however, that the nurses and employees of the Axtell Hospital were assured of was that of substantial meals, for Dr. Axtell was interested in farming and dairy enterprises and the basement of the hospital always held a good supply of home processed meats, vegetables, and fruits.

During October of this same year, Dr. Axtell successfully completed two abdominal operations on patients. The event was followed by complete recovery, a rare event in Kansas at this time. This helped considerably to establish the reputation not only of the young doctor but also of the budding hospital, for these institutions at this time were considered as a place of last resort and were regarded with considerable trepidation by the general public.

The following appeared in an early edition of the Newton daily paper and may be of interest:

PHYSICIANS

Dr. G. Boyd

Physician and Surgeon, Calls answered day or night from his residence, No. 623½ Main St.

J. T. Axtell, M.D.

Res. 120 E. 7th St.

W. D. Nolder, M.D.

Res. 111 Main

Axtell & Nolder

Physicians and Surgeons, graduates of Bellevue Hospital Medical College of New York City. Office treatment 8 to 10 A.M. and from 2 to 4 P.M. Also at other hours when not visiting patients. Eyes properly tested for glasses. Rooms over Drug Store. 524½ Main Street.

Axtell Hospital

207 East Broadway. For surgery, diseases of women and of the eye and ear. Private room with board from five to ten dollars a week. Trained nurses in attendance on all cases.

J. T. Axtell, M.D., Proprietor

Dr. Axtell was interested not only in his own hospital but also those of the whole state, and he was active in hospital organization and stressed the importance of keeping careful records. His feelings are expressed in his statement, "The relationship of the doctor and the hospital is like that of man and wife. Each is essential to the other." He also compared this relationship to that in a poem by Longfellow,

"As unto the bow the cord is,

So unto man is woman,

Though she bends him, she obeys him,

Though she draws him, yet she follows,

Useless each without the other."

By 1890 it became necessary to enlarge the existing facilities of the hospital and this was done through the addition of a second story to the original frame building. This expansion enabled the accommodation of eight or ten patients. The interior of the building on the second floor was remodeled to make an operating room with a skylight and a bathroom which was used both by the patients and the surgeon during his scrub up. A portion of the available space was used by the physician and his family as living quarters as expenses were a prime factor in this early institution.

This operating room was a model for its time and the upmost care was taken to ensure its cleanliness at all times. According to *Lamps on the Prairie*, "Dr. Axtell, who had been trained at one of the best schools of the day and had interned in a hospital of high reputation, was especially careful of his operating room. Its painted walls were washed (hand scrubbed with a stiff brush, according to Dr. J. L. Grove) after each operation and the white muslin shielding the skylight was also replaced. He used long fish kettles for sterilizing his instruments. He had a regular hour for beginning operations—8:30 in the morning. Fees were regulated according to the service performed. For example, when tonsillectomies were first performed, he usually charged five dollars for the operation, but if only one tonsil came out the fee was two dollars fifty cents."

The "scrub up" at this time was an important part of any surgical procedure for the first use of rubber gloves by Dr. Halstead at Johns Hopkins was still a few years away. In 1906 Dr. Axtell became one of the first doctors in the area to use these gloves against much protest and criticism from other members of the profession. Dr. Axtell insisted on a routine procedure of fifteen minutes scrubbing, using green soap and a rough brush. Ten times on each side of each finger and ten times for each nail was his required regime. An amusing incident occurred in connection with this soap and its use. An aggressive drug salesman had succeeded in selling Dr. Axtell a ten-gallon keg of his new superior type of soap, the quantity having been stressed to insure a good price. This keg was stored in the basement along with the rest of the food

supplies and was placed next to the keg of cider which was always present and played an important part in the cook's preparation of mince pies. On this particular morning, tense quiet prevailed in the operating room. A large abdominal tumor was to be removed and the patient was relaxed and ready. Dr. Axtell was preparing to make the initial incision. Suddenly, there was a commotion in the hall, the door to the operating room burst open, and in jumped Uncle Ray (a general handyman around the hospital) in a wildly excited state, frothing at the mouth, whiskers covered with foam, exclaiming that he had been most vilely poisoned! Between breaths, gagging and spitting, he declared that he was dying. Investigation into the cause of his condition revealed that he had been in the basement and had failed to distinguish the keg of liquid soap, which was spigoted and racked, from the cider which lay alongside. As he had undoubtedly done before, he filled a glass and took a couple of hurried gulps, only to find that the "good old cider" had changed.

It may be of interest to note that the operation was a success. An ovarian tumor weighing twenty-four pounds was removed from the one hundred pound patient. This same patient in later years invited the doctor to her seventy-fifth birthday celebration.

In 1899, the hospital again was enlarged, this time the addition consisting of a two-story frame wing which increased the bed capacity to thirty-five. At this time the operating room was remodeled and modern gas sterilizing equipment was installed.

A prominent side of Dr. Axtell was his characteristic of looking ahead to what was coming and being able to utilize the new inventions, evaluating each as they appeared. The following item appeared in an 1901 edition of the Newton paper and probably refers to the first baby incubator used in Newton.

Raises Babies

Dr. Axtell has an Ingenious Contrivance at his Hospital for Strengthening Underdeveloped Babies.

Newton is, therefore, a baby factory, that is, a place where babies who are born with scarcely strength enough to fight the battle of life can be nourished until they are strong enough to live and grow without external help. At the Axtell Hospital is a sight that could hardly fail to thrill the most phlegmatic, wrapped in cotton and lying on a bed of the same material in a small box are two little pieces of humanity. They are so tiny that they might easily be taken for dolls as they lie there basking in the heat which radiates from a coil of pipes under them. These pipes were arranged by an expert brought here from a neighboring city for the purpose, and are so placed that a uniform temperature of 96 degrees is constantly maintained. This is two degrees less than the temperature of the blood. Day after day and night these weaklings, one of which

weighs only 3 pounds, and the other 3½ pounds, live in their torrid prison and are only removed when they are to take nourishment. Fresh air is supplied by an opening in the bottom of the box. After passing through a wet sponge and circulating through the box, the air passes out through an opening at the end of the box.

This apparatus is one which is not found in many places in the West, but is used quite extensively in the big hospitals in the East. Dr. Axtell has felt the need of such an apparatus for some time and now feels certain that he will be able to save the life of many a little one who might otherwise prove unequal to the struggle of existence.

In 1893, Dr. Axtell's wife, Lucena, enrolled in the College of Physicians and Surgeons of Kansas City, taking their two daughters with her. This was the culmination of a long plan looking forward to the day when she would be able to assist the doctor in the hospital at Newton. Accompanying her was Frank Abbey, who was a graduate pharmacist and had for some years conducted a drugstore under the name of Axtell and Abbey, and Anna Perkins, who had been one of the early nurses at the Axtell Hospital. Dr. Axtell was at this time lecturing in orthopedic surgery at the medical school so his separation from his family was not complete. Following their graduation in 1897, they returned to Newton and entered practice with Dr. Axtell. Dr. Anna Perkins stayed with the Axtells in their home for some time before moving to the community of El Dorado where she served many useful years.

Considering the number of mortgages recorded and released in the Register of Deeds Office, Harvey County, prior to 1900 on the Axtell Hospital property, one is convinced that Dr. Axtell was having to put in a full day and many nights in the practice of his profession to meet the increasing demands for hospital service in his community. Now hospitals had come to be regarded not as the final waystation on the way to death but as lifesaving institutions where excellent care was available to those requiring it. So it became necessary again in 1902 to add an additional wing which increased the capacity to forty patients and twelve nurses. In 1911, largely stimulated by a similar movement by the Mayo Clinic, the buildings were fireproofed. Although this was not a complete job, it did mark the first such attempt of any hospital to reduce the chances of destruction by fire. In 1913 a three-story and basement fire-proof structure was built, marking the accomplishment of one of the doctor's big goals. The three floors and ceiling beneath the roof structure were reinforced concrete, and the wall was constructed to carry an additional two stories. An elevator, in a fire-proof shaft, also was installed. An X-ray machine of modern type replaced the old hand-operated plate machine which had been

used for a number of years in Dr. Axtell's office and a laboratory was organized where routine testing could be run. The vacated frame hospital was occupied by the clinic staff in part, while the rest of the structure was utilized for nurses' residence and the training school.

By 1919, the hospital once again found itself limited in size and at this time a west wing was added at a cost of \$65,000.00. This not only increased the number of patient beds but also provided for a lobby and doctors' offices. Also, the X-ray machine was moved out of the basement.

Dr. Axtell was always convinced of the value of autopsies and through the years actively sought to perform as many as possible. At one time he obtained permission from the person who owned the land on which Newton's former "Boot Hill" was located, and dug up three bodies from the unmarked graves for anatomical study. No record of the findings is available other than the fact that they were buried without their boots.

Dr. Axtell had been a classmate of William Mayo at Ann Arbor and the friendship established there continued through the years. The establishment of the Mayo Clinic in Rochester was of great interest to Dr. Axtell and the new ideas introduced there were quickly brought back to Newton. It was here that he was exposed to the concept of the practice of medicine in groups and, realizing its potential, he established a clinic back at the Axtell Hospital although at the time it was not called a clinic. So enthusiastic was Dr. Axtell over the Mayo brothers' setup that he even duplicated the leather and wicker chairs for use in the lobby of his own hospital. Dr. Axtell made an annual trip back to Rochester to visit the clinic and always returned home eagerly with new ideas to try out.

On one of his trips to the Mayo Clinic, he had an operation for gallstones. Dr. Will Mayo performed a drainage operation and removed numerous small stones. The recovery period was long and stormy. Dr. Axtell, tiring of his role of patient and anxious to return to his practice in Newton, started changing his own dressing just before the doctors at the clinic would make their rounds. He arrived home still draining freely.

Axtell Hospital was one of the early institutions in the state to purchase a supply of radium. It obtained slightly more than 100 mgm. which at the time was valued at approximately \$100.00 a mgm. There occurred in connection with this radium some interesting circumstances. The use of this substance sometimes required its removal from the patient at odd hours, and this, coupled with the fact that some of the nurses failed to realize the value of the radium, accounted for a particular episode when the radium was removed with the soiled dressing and taken with

other waste to the incinerator, which at that time was coal burning. When the needles were missed, the services of a physicist from Kansas University, using an instrument similar to a geiger counter were required to locate the radio-active material in the ashes. Two barrels of these ashes were sent to Pittsburgh where the radium was recovered and processed. More than 90 per cent of the element was recovered and this was re-standardized, placed again in the platinum needles and returned for use at the hospital.

Once again showing the foresight which was so much a part of his character, Dr. Axtell realized that hospital services were fast becoming too complex, extensive, and costly to be operated as private institutions that the private owned hospital, so helpful to the earlier days of medicine, would soon be the exception. These views were expressed in a paper presented to the Kansas Medical Society during its annual meeting in Wichita in April of 1921.

"All the hospitals are with difficulty self-supporting and a large number are not self-supporting. As the poor people naturally drift to the hospitals it becomes a burden for the hospital and hospital doctor alike. It is not right that doctors should bear all the burden of caring for the indigent sick. It is equally the duty of every other man and taxpayer to bear his share of the burden. It is up to the doctors and our local medical societies to educate the people that the only fair division is for the taxpayer to pay at least part of the cost of caring for the poor who cannot pay their bills."

On February 10, 1925, the Axtell Hospital was transferred from Dr. J. T. Axtell and Dr. Lucena C. Axtell to the Kansas Christian Missionary Society. Perhaps one factor influencing his decision to give the hospital to this group was the desire for his work in life to be perpetuated by a charitable and religious organization. This move by Dr. Axtell brought considerable outcry from various doctors in Harvey County, one particularly well known one in Halstead claiming that such a move would make the doctor lose control of the hospital and its workings.

The passage of time, however, has proved this decision to be a wise one. The Christian Church of Kansas has measured up to the responsibility entrusted to it, exemplified by the expenditure of over \$200,000.00 in 1957 for complete remodeling of the operating room facilities, installation of a completely modernized obstetrical division, installation of a new X-ray machine, addition of laboratory and physical therapy departments, and the construction of a chapel. Also, an emergency surgery room was located adjacent to the additional elevator and modern ambulance entry.

While the Axtell Hospital naturally played a major role in the career of this man, it was by no means the

limit of his interests or activities. Since he came from a farming family, this type of life always remained dear to him and Dr. Axtell always held considerable farm property and was especially interested in the raising and improvement of livestock. Always a fancier of fine horses (even back to the day when he first rode into Newton on his white horse), he built a large stable of horses including the locally famous stallion, Gambiel, and the record holding trotter and namesake, Axtell. When trotting horses went out of style, he moved into the field of Percherons. In 1905 he held one of the biggest horse sales in the state of Kansas at Wichita. The evening following the sale he returned to Newton with approximately \$15,000.00 and as the banks were closed, decided that the safest place for the money would be under the mattress of Grandmother Chase's bed at the hospital. He felt that no robber would be rude enough to disturb an old woman's sleep in the middle of the night.

He was also interested in cattle and went to Wisconsin to bring back registered Holsteins and Guernseys, the first in Harvey County. Dr. Axtell had long recognized the abortive effects of Bang's disease and insisted that all infected cattle be destroyed. He was also concerned with tuberculosis, especially the bovine type which was prevalent in the area. On night calls his only accepted food was milk-toast. This not only provided nourishment, but also served to pasteurize the milk.

Dr. Axtell was always active in medical societies and was one of the earliest members of the Harvey County Medical Society and one of the first in the area to join the Kansas Medical Society. He served in 1904 and again in 1910 as second vice-president for the state society and as its president in 1911. He worked as an associate editor for *THE JOURNAL OF THE KANSAS MEDICAL SOCIETY* from 1926 to 1934.

Associated with the work of his own hospital, Dr. Axtell was also one of the founders and first president of the Kansas Hospital Association and, for many years, served as secretary. He also served for a number of years on the Kansas State Board of Health, on the Medical Examining Board and during the First World War as one of the three men on the State Board of Exemptions for the draft.

Teaching was always dear to the heart of Dr. Axtell and he held a position as Professor of Orthopedic Surgery at the College of Physicians and Surgeons for eight years. He was a fellow of the American College of Surgeons and during his long career published many articles in the various medical journals on surgery. His teaching was not limited to the field of medicine. Among the real pleasures in his life were his duties in holding an adult Bible study class at the Congregational Church. He is remembered as a wonderful teacher and one who loved to spend many

hours quoting and arguing passages from the Bible. He used quotations in his everyday life, usually with purposefully distorted content, to provide a humorous note to certain events.

Dr. Axtell appeared to take great pride in watching something grow and improve through his efforts. This is shown in his works with the hospital, the various organizations he joined, and in his farming. As part of his interest in growth came the City of Newton, and he played an important role in the construction of many of the business and public buildings. Several additions to the city were developed by him and he was instrumental in planting the trees and securing the land for the city on which Athletic Park now stands. Dr. Axtell was an early member of the Commercial Club and later Chamber of Commerce. He served as a director of the Kansas State Bank and First National Bank of Newton and was on the City Council and Board of Education.

Today Newton continues to grow and prosper. The foundation laid by Dr. Axtell and other city founders has proved sound. Newton's doctor and patient-bed ratio to the population is one of the best in the state. Influx of industry and population has greatly expanded the boundaries of the town. The community owes much to this breed of man who established not only the physical structure of the town, but also set the intellectual and spiritual standards, and today their spirit is felt in all walks of activity in Newton.

Editor's Note: References may be obtained by writing THE JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 West Fourth Street, Topeka, Kansas.

Fire!

One of the most painful deaths is death by burning. Last year in Kansas there were 83 deaths due to burning, the State Board of Health reports, and the ages of the victims ranged from 27 days to 98 years. One of the deaths was caused by a bolt of lightning—the other 82 could have been prevented. Smoking in bed took its usual toll of lives, bad electrical wiring caused fatal fires, kerosene thrown on fires to "get them going" took a number of lives, wearing baggy clothes around a heater or at the stove caused death. . . . The list is almost endless but all the causes of death have one thing in common—carelessness. Don't play with fire—you'll get burned.

"If you treat a man as he is, he will stay as he is, but if you treat him as if he were what he ought to be, and could be, he will become that bigger and better man."—Goethe



Carcinosarcoma of the Endometrium

Edited by T. P. MARAMBA, JR., M.D.

Dr. Kornfield (Moderator): For presentation today we have an unusually interesting gynecologic case. Will the student please present the case?

Mr. Hand (Student): This 55-year-old white woman was admitted for the second time to the KU Medical Center on April 24, 1961, with the chief complaint of "tumor of the womb." Her last menstrual period was in 1956. In December, 1960, she began having a watery vaginal discharge which soon became grossly bloody. This gradually subsided, ceasing completely in January, 1961. In the same month she had a "heart attack" necessitating hospitalization for seven weeks. She was first seen at the KU Medical Center in March of this year where a uterine curettage revealed carcinosarcoma of the uterus. It was decided that she could be best managed with radium therapy, later followed by hysterectomy. She received 5,540 milligram hours of intracavitary radium therapy and was discharged. She returned in April for a hysterectomy. Menstrual history is essentially normal. She has not had any pregnancies. Orthopnea, dyspnea, and pedal edema have been present since January of this year.

At the time of her latest admission she did not appear seriously ill. Her blood pressure was 120/75. She had rales, dullness, and decreased breath sounds in the bases of both lung fields. The heart was enlarged. A prominent apical thrust was present, and a harsh crescendo-type grade III pansystolic murmur was heard over the entire precordium. There was distention of the neck veins and enlargement of the liver 10 fingerbreadths below the right costal margin. There was a mid-abdominal ventral hernia 6 cm. in diameter. Two-plus pretibial edema was

noted bilaterally. The pelvic examination was negative except for slight enlargement of the uterus. The cardiac lesion was diagnosed as arteriosclerotic heart disease with mitral insufficiency.

Dr. Kornfield: In essence, then, this is a 55-year-old woman whose cardiac status is poor and who was recently hospitalized for seven weeks, for what is assumed to have been a myocardial infarction, following a period of vaginal bleeding. She was referred to this hospital where uterine curettage disclosed an unusual tumor for which the gynecologic surgeons advised hysterectomy, in spite of the history of a previous heart attack. Would you discuss this interesting tissue, Dr. Mantz?

Dr. Mantz (Pathologist): I would first like to refresh your memory on the embryology of the female genital tract. In the embryonic body, there is differentiation into an outer layer of ectoderm, an intervening layer of mesoderm, and an inner layer of endoderm. As the embryo further develops the endoderm forms a saccular canal which is the primitive gut. As this occurs, the mesoderm undergoes a splitting, resulting in the formation of a coelomic cavity which is lined by what is erroneously termed coelomic epithelium. I maintain that this is erroneous because that which appears as epithelium is mesodermal in origin and in due time is recognized as the mesothelium of the serosal surface. At a later time, when the mesentery of the gut is being formed, there is an irregular proliferation of cells forming two bilobate hillocks on either side of the midline. Part of each of these represents the anlage of the kidney, and another part the genital ridge, from which the genital apparatus is to be derived. This genital ridge is multi-potential. Into it migrate the germinal cells which become spermatogonia in the male and ova in the female. The tissue of the genital ridge itself constitutes the blastema from which the greater bulk of the genital system is derived.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Maramba is a resident-fellow in pathology, supported in part by USPHS grant 2G-125.

Now let us consider the fate of this tissue in the female. First of all, we know that it has the potential of forming epithelium, i.e., the epithelium which lines the salpinges, the endometrial cavity, the endocervical canal, and the external portion of the cervix. Stromal elements are also derived from this tissue, smooth muscle being the chief one, but also the stroma which supports the epithelium of the cervix, endometrium, and tube. But this tissue, being of mesodermal origin, has even broader potentials. Under abnormal, neoplastic circumstances, it can form fatty tissue, muscle, cartilage, bone, endothelium, and components of the reticuloendothelial system. So here we have a powerful and multi-potential structure; if we never forget this we can appreciate the potential of tumors that can be derived from this structure.

The surgical tissue submitted consisted of uterine curettings. The surgeons encountered a moderate degree of stenosis at the upper portion of the cervix and when this was released, there poured out of the uterus a considerable amount of tissue. The tumor, although not very well differentiated, has all the characteristics of an endometrial carcinoma (*Figure 1*). It is composed of large epithelial cells which in areas form glandular structures and other areas, sheets of cells which, not infrequently, are arranged in lobular clusters. It is a tumor which one has to be alarmed about because it appears to be rapidly growing and poorly differentiated, indicating a poor prognosis. In some areas there is a variation, in that

the tumor cells are large and appear almost reticuloendothelial in type (*Figure 2*). They have lost their epithelial appearance and begin to show the spindle shape of a mesodermal type of growth. This variation is more marked in some areas where the cells tend to stream out, almost forming bundles and showing a histologic appearance highly suggestive of an embryonal or undifferentiated type of sarcoma. On higher power, we see another characteristic of a sarcoma, i.e., the capacity of the tumor cells to approach very closely the blood vessel walls. The neoplastic cells almost form the wall of the blood vessels, being separated from the lumen oftentimes by a single layer of endothelium which cannot always be observed in a given field. In other words, we are presented with an embryonal sarcoma developing in an endometrial carcinoma. Given a lesion which is composed of a sarcoma and a carcinoma, we are faced with the problem of giving it a name. Should we consider this as two distinct tumors which are in collision one with the other, or should we consider this tumor as behaving as the Müllerian tissue has the potential of doing, i.e., differentiating along multiple lines? The latter viewpoint is preferred and is more in keeping with the embryology of the female genital tract. Therefore this lesion is classified as a carcinosarcoma.

In this same category of lesions are the so-called "botryoid tumors." These tend to occur at the two extremes of life. In the female, in the very young, they are observed in the cervix and vagina, occurring

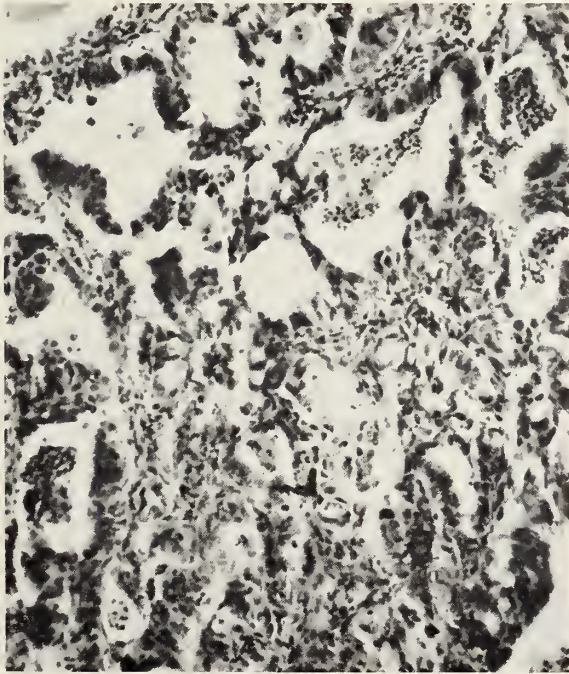


Figure 1. Tumor of endometrium, adenocarcinomatous pattern ($\times 135$).

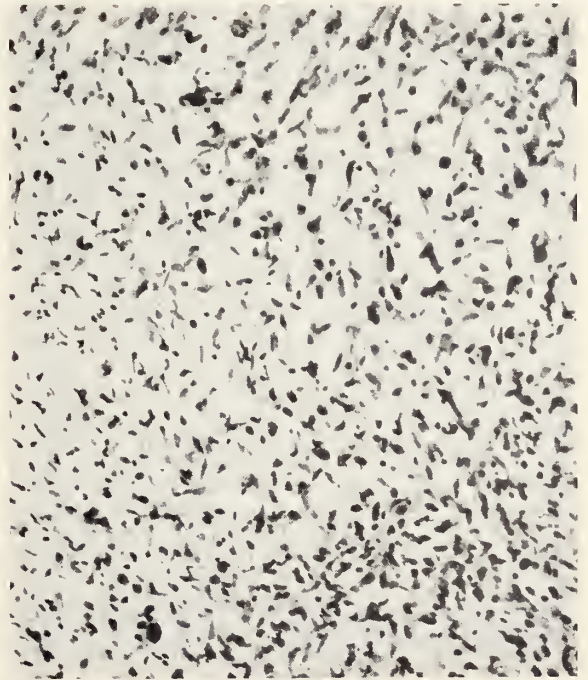


Figure 2. Tumor of endometrium, undifferentiated sarcomatous pattern ($\times 135$).

as great masses of grape-like tissue. In the elderly group of individuals 50 years or above, the botryoid tumor tends to originate higher up, i.e., in the endometrium, and the masses tend to be larger and less grape-like but nonetheless are basically the same tumor. It would not be surprising if we would be able to demonstrate in this tumor striated muscle, cartilage, bone, or other tissues derived from mesoderm.

Dr. Kornfield: Dr. Rockwell, could you tell us the clinical aspects of this unusual tumor?

Dr. Rockwell: Dr. Robert Meyer² divides carcinosarcoma into three types. (1) "Collision tumors": there are two distinct primary malignant neoplasms, i.e., a carcinoma and a sarcoma, usually with a sharp junction between the two tumors. In the present case, however, there is a merging and blending of the two components of the lesion. (2) "Composition tumors": the tumor starts out as an endometrial carcinoma and the stromal elements subsequently become sarcomatous. (3) "Combination tumors": these are considered as teratomas in which both the epithelium and connective tissue elements become malignant. From what Dr. Mantz has told us, this present tumor belongs to the second group.

Clinically, a woman with carcinosarcoma of the endometrium will not present any differently from a typical case of endometrial adenocarcinoma. The two tumors occur in the same age group and their presenting symptoms are pretty much the same, the outstanding one being post-menopausal bleeding. There is one significant difference, however, and this is the history, sometimes questionable, of having received irradiation in the past. In one series of fourteen patients with carcinosarcoma, four had received irradiation; and in another reported series of four cases, three had been irradiated. There always arises the question whether the patient treated with irradiation for supposedly functional bleeding, had already at that time the malignant lesion. This apparently is not so, because the average time interval between irradiation and the diagnosis of the tumor is about ten years, which is a long time for such a cancer to smolder without manifesting itself. The treatment of this tumor is surgery because the presence of sarcomatous elements makes this neoplasm radioresistant. It is interesting that the metastases of this malignant lesion are oftentimes pure carcinoma or pure sarcoma. Not infrequently, the postirradiation patient has a biopsy which consists only of sarcoma, suggesting that the carcinomatous elements have been obliterated by the irradiation. This tumor has a worse prognosis than pure endometrial carcinoma. As late as 1951, there were no reported five-year survivals. But in 1955, at least 7 patients were reported to have survived for 5 years. This is the reason why, although this woman

had a myocardial infarct, we believed it imperative to submit her to surgery.

Dr. Kornfield: Dr. Rockwell, why did this patient's bleeding subside spontaneously without any treatment at about the time that she had a "heart attack"?

Dr. Rockwell: It is conceivable that the cervix was sealed off, probably by tumor growing into the endocervical canal. At the time of the curettage there was a pinpoint cervical opening and a watery discharge was issuing from the cervix.

Dr. Kornfield: If the prognosis is so grim, why do you recommend her to undergo surgery?

Dr. Rockwell: Although there have been very few "five-year cures" and even rarer "seven-year cures," the few cases which have survived had surgery, more often combined with irradiation. Carcinosarcoma metastasizes early and the metastases are blood borne for the most part, accounting for the poor prognosis.

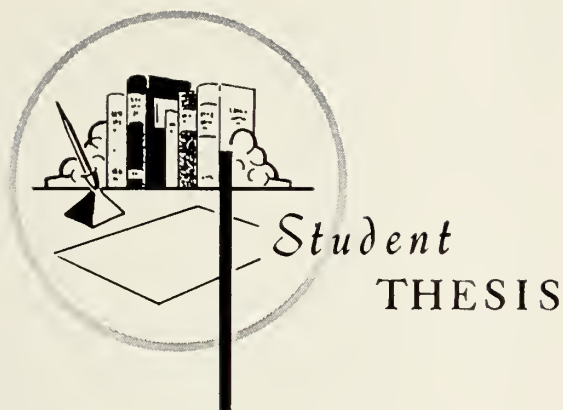
Dr. Kornfield: Dr. Tice, what is the effect of x-ray treatment on this tumor? Would you tell us the purpose of the radium which was given to this woman initially before operation?

Dr. Tice: On the whole, carcinosarcoma of the uterus is not radiosensitive. The treatment of choice is a combination of surgery and irradiation. In so far as the adenocarcinomatous portion of this lesion is concerned, there have been many cases of adenocarcinoma of the uterus which have been controlled or even considered cured after irradiation. In a case of carcinosarcoma, one can irradiate the tumor to obliterate the epithelial component and any carcinomatous lymphatic metastases, and get the tumor under better control before surgery.

Dr. Kornfield: Dr. Hobson, since this patient was under your care, would you tell us about this patient's course in the hospital and her definitive treatment?

Dr. Hobson: When this patient was referred to us, she was in severe congestive heart failure. Since she was in no condition for surgery, radium therapy was instituted as a stop-gap measure. We hoped that a hysterectomy could be done at a later time. If not, radium therapy could have at least slowed the progress of a rapidly growing tumor. If she had been at least a fair surgical risk, she would have had a hysterectomy at that time without pre-operative irradiation. In the usual case of adenocarcinoma of the endometrium, we wait for six weeks after irradiation, but we decided to operate on this woman after three weeks, because we felt that a shorter time between irradiation and surgery may offer her a better prognosis. When she was admitted this last time, her liver edge was ten fingerbreadths below the right costal margin and two-plus dependent edema was

(Continued on page 452)



Hyperparathyroidism and Peptic Ulcer

JAMES R. WEBB, M.D., *Kansas City*

HYPERPARATHYROIDISM is a disease of protean manifestations. Its complex, diverse, and fluctuating symptomatology is a result of impaired and altered physiology of other organs created by the associated chemical imbalance. Some of these secondary effects become so pronounced that they overshadow the true nature of the disease, causing a critical condition which in itself would appear to be the primary problem.

Gastrointestinal symptoms in primary hyperparathyroidism were first emphasized in 1934 by Gutman, Swenson and Parsons. In their review of 119 cases of hyperparathyroidism they noted skeletal and renal symptoms to be the most common initial and late findings in the disease. However, anorexia, nausea, vomiting and epigastric pain were major initial symptoms in 13 per cent of the cases and major late symptoms in 26 per cent. These authors noted that gastrointestinal symptoms may dominate the clinical picture to the extent of suggesting duodenal ulcer or acute appendicitis.

In 1946 Rogers reported 3 cases of hyperparathyroidism associated with duodenal ulcer. Two of the patients exhibited primary hyperplasia of the glands while the other exhibited a single adenoma.

The incidence of peptic ulceration and hyperparathyroidism reported in the literature varies considerably. St. Goar reported in two separate series an incidence ranging from 8.8 per cent at Presbyterian

Hospital in New York to 9.1 per cent at Massachusetts General Hospital, Boston. Howard, et al. state that in 15 per cent of the Johns Hopkins' cases of hyperparathyroidism there was co-existent peptic ulceration. In considering the larger series reported there is an average of about 10 per cent of the hyperparathyroid patients with proven ulcer.

The following table, taken from Moses, shows the incidence and sex distribution of the patients with peptic ulcer and hyperparathyroidism in three of the larger series reported. There is a total of 269 patients in this combined series.

| PRIMARY HYPERPARATHYROIDISM ASSOCIATED WITH PROVEN PEPTIC ULCER | | | | |
|---|--------------------------|----------------|--------------------------|-----------|
| <i>Male</i> | | <i>Female</i> | | |
| TOTAL CASES | ASSOCIATED WITH ULCER | TOTAL CASES | ASSOCIATED WITH ULCER | SOURCE |
| 39 | 8 | 98 | 4 | St. Goar |
| 17 | 5 | 33 | 2 | Hellstrom |
| 16 | 3 | 29 | 1 | St. Goar |
| 11 | 2 | 26 | 2 | Moses |
| — | — | — | — | |
| 83 | 18 (22 %) | 186 | 9 (5 %) | |

As noted on the accompanying chart, females with primary hyperparathyroidism outnumber males in the ratio 2.2 to 1. Nevertheless, hyperparathyroidism in the male is complicated by peptic ulcer four times as frequently as in the female. In Hellstrom's series the incidence of peptic ulcer was 28.6 per cent in males,

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. James R. Webb is now serving internship at St. Margaret's Hospital, Kansas City, Kansas.

as compared to only 4.6 per cent in females. These figures emphasize the high relative incidence of peptic ulcer in males with hyperparathyroidism. The actual per cent incidence in males and females is undoubtedly even greater since x-ray confirmation cannot always be obtained in patients with clinically evident peptic ulcer. St. Goar reported that 16 of his series of 45 hyperparathyroid patients had clinically significant gastrointestinal symptoms. In 9 of these patients the dominant symptoms were referable to the gastrointestinal tract. Of these, 4 had demonstrable peptic ulcers, 2 other patients without demonstrable ulcer had epigastric pain and one had upper quadrant postprandial distress.

Several theories have been advanced to account for the relationship between hyperparathyroidism and gastrointestinal symptoms, particularly peptic ulceration:

(A) The parathormone theory: When parathormone is injected in large doses into dogs, subsequent edema, necrosis and calcifications of the glands of the gastric fundus are noted. Simultaneously there is a sharp rise in serum pepsinogen levels. The authors postulate the following sequence of events: 1) injection parathyroid extract, 2) breakdown of bone, 3) hypercalcemia, 4) precipitation of calcium salts in the gastric mucosa, 5) necrosis of the depths of the fundic glands, and 6) liberation of the pepsinogen of the chief cells picked up by the capillaries and probably excreted in the urine as uropepsin. Engels injected rats with parathormone and noted a subsequent rise in serum mucoprotein levels. This may have resulted from a breakdown of the gastrointestinal mucosa as well as the ground substance of bone and cartilage.

(B) The genetic or constitutional theory: St. Goar states that since there is no clear-cut cause and effect relationship between hyperparathyroidism and peptic ulcer, it is possible that both diseases are manifestations of some more basic abnormality. He refers to 2 reports of familial adenomatosis and peptic ulcer, which were thought to be caused by a dominant autosomal gene with a high degree of penetrance. Perhaps some day the geneticist will help to clarify a subtle inherited abnormality which leads to adenoma formation in some people, to peptic ulcer formation in others, and, in a few people, to the development of both entities.

(C) The hypercalcemic theory: It is generally accepted that the hypercalcemia per se of primary hyperparathyroidism may cause nausea, vomiting, anorexia and constipation. These symptoms are a result of the decreased neuromuscular excitability and tone of the upper and lower gastrointestinal tract. These gastrointestinal symptoms may be present when hypercalcemia occurs in diseases other than hyperparathyroidism. Hypercalcemia has been implicated as a

possible cause of peptic ulcer in hyperparathyroidism since the sluggishness of the gastrointestinal tract in hypercalcemia may prevent healing of what would otherwise be subclinical, spontaneously healing ulcers.

Increased secretion of stomach acid cannot be used to explain the development of ulcers in hyperparathyroidism. Ostrow et al. report that in seven patients of his series and 11 more reported in the literature the concentrations of gastric acid were within or below the normal range in all but four cases, although nine had proven peptic ulcer disease. Two of the four patients with increased gastric secretion had multiple endocrine adenomas, characteristically associated with gastric hyperacidity. In three of four patients in whom gastric secretion was studied pre- and post-operatively, removal of a parathyroid adenoma did not decrease gastric acidity. Donegan and Spiro found no significant change in the output of gastric acid after administration of parathyroid hormone or calcium gluconate to eight normal human subjects, or after excision of parathyroid adenomas in five patients with hyperparathyroidism.

None of the above theories can adequately explain the mechanism of development of peptic ulcer in hyperparathyroidism. It remains for future experiments to elucidate the exact relationship of hyperparathyroid disease and peptic ulcer.

One of the first questions that must be investigated in a discussion of the relation between hyperparathyroidism and peptic ulcer is whether the concurrent incidence of these two diseases is actually higher than the corresponding incidence of peptic ulcer in the general population. Although many investigations have been made on the incidence of peptic ulcer, the resulting figures have been variable. The figures vary depending on the subject material used. Some autopsy figures ran as high as 18 per cent of the population demonstrate peptic ulcer or scars that are assumed to have resulted from them.

Welsh and Wolf report that in a study of the incidence of peptic ulcer disease in the town of Drammen, Norway the overall ulcer rate was 2.08 per cent of the total population and 2.45 per cent for the population over 15 years old. This study was unique because during the second World War patients who had peptic ulcers had to turn in a card for special rations and had to have roentgenographic verification of their disease.

In 1951 Doll and Avery Jones took a survey of a number of representative groups in the London area. Their method was to interview every individual worker employed by a number of firms in the London area. Altogether over 6,000 workers were included. On the basis of symptoms and collateral evidence such as previous hospital investigation those workers who gave a history of indigestion were classified as major and minor dyspepsia. Altogether 334 workers were

found to present definite or strongly presumptive evidence of peptic ulcer. Their results gave an incidence of peptic ulcer for men age 15-64 of 5.8 per cent and for women 1.9 per cent. The peak age incidence was 10 per cent in men aged 45-54 and in women 6 per cent at age 55.

In a series of coroner's autopsies which covered 3,223 cases Teare and Avery Jones recorded the presence of peptic ulcer and scars of the stomach and duodenum. These were mainly patients who had died suddenly either from violence or natural causes. It was thought that such cases of sudden death would give a true picture of the incidence of peptic ulcer in the general population, and the picture would not be complicated in some groups by the presence of a preceding illness which might cause or exacerbate the ulcer. The following table shows the incidence of ulcer and scar in this series. Of these people, 4.2 per cent had active peptic ulcer at the time of death, 10.2 per cent had scars presumably due to peptic ulceration.

PEPTIC ULCERS AND SCARS AT AUTOPSY

| Sex | Age Group | Number | Ulcer or Scar | Per Cent |
|--------|--------------|--------|---------------|----------|
| Male | Less than 45 | 238 | 17 | 7.1 |
| | 45-65 | 636 | 116 | 16.6 |
| | 65 plus | 979 | 175 | 17 |
| Female | Less than 45 | 150 | 6 | 4 |
| | 45-65 | 324 | 33 | 10 |
| | 65 plus | 896 | 119 | 13 |
| Total | | 3223 | 466 | 14.4 |

The above mentioned studies demonstrate the difficulty in arriving at an accurate figure for the incidence of peptic ulcer. The incidence varies from place to place and from time to time. The case reports of hyperparathyroidism and peptic ulcer have been collected from many different parts of the world and all of them cover a considerable length of time.

A study of the behavior of the ulcer disease during the course of hyperparathyroidism is interesting. Hellstrom reported the ulcer may behave in three different ways. First, it may heal spontaneously or after gastric resection, with persisting hyperparathyroidism. In this case, the presence of the two diseases should be regarded as a coincidence. Second, the ulcer persists possibly with temporary or permanent remission—as long as hyperparathyroidism is present, but heals if it is arrested by parathyroidectomy. In this case, hyperparathyroidism has unquestionably influenced the ulcer disease, at any rate by preventing healing of an ulcer. Third, the ulcer persists even if hyperparathyroidism has been arrested by parathyroidectomy. In this case, it is difficult to believe that hyperparathyroidism is the essential cause of the ulcer disease, but

some other factors exist which influence it. In Hellstrom's series of 14 patients, he felt there was significant change in the ulcer disease after parathyroidectomy in 7, or 50 per cent.

In many respects the clinical features of peptic ulcer in hyperparathyroidism are not unusual. As in the general population, peptic ulcer is approximately 2-3 times as frequent in males and duodenal ulcer outnumbered gastric ulcer about 4:1. In Hellstrom's report he stated the site of the primary ulcer was as follows: duodenum 22 cases, stomach 7 cases, duodenum plus stomach 1 case, duodenum and jejunum 1 case, uncertain 3 cases. The following is a case report of a patient taken from the records of this hospital:

This 46-year-old colored female was first admitted to this hospital in June 1957, with a history of epigastric distress and severe episodes of melena for approximately one year, and more recently the patient had had coffee-ground vomitus. On admission the hemoglobin was 8.4 grams and blood pressure 70/50. She was taken to surgery and a subtotal gastrectomy was performed. At operation the distal two-thirds of the pancreas was found to be firm with scattered irregularities which was thought to be calcium. Examination of the pathologic specimen showed a chronic duodenal ulcer.

Laboratory findings on this admission included serum calcium 7.2 mEq/liter, phosphorus 1.3 mEq/liter. Abdominal x-rays indicated pancreatic calcinosis. On later admissions the serum calcium ranged from 4.2 to 7.8 mEq/L., phosphorus was 1.0 mEq/L., and a diagnosis of hyperthyroidism was made. A parathyroid adenoma of the left inferior gland was removed in May, 1959. After the operation the serum calcium returned to 5.1 mEq/L., the phosphorus remained low at 1.6 mEq/L., and total proteins were 4.82 grams, per cent.

On her last hospital admission in September 1959 the patient complained of shortness of breath, edema and persistent diarrhea. Results of laboratory studies were as follows: calcium 5.5 mEq/L., phosphorus 1.2 mEq/L., total proteins 4.83 grams per cent. During the hospitalization the patient continued to lose weight, her caloric absorption was extremely poor and she had loose stools. Despite supportive treatment, the patient expired.

Autopsy findings were a 2 x 1 x .5 cm. parathyroid adenoma of the right inferior gland, calcinosis of the pancreas and nephrocalcinosis.

This patient had laboratory evidence of hyperparathyroidism at the time of her gastrectomy in 1957. The surgery apparently healed the ulcer disease, since on numerous later admissions she had no symptoms or evidence of recurrence. The hyperparathyroidism was not treated until one year later, and the second adenoma was present until death two and one-half years after surgery. At autopsy there was no evidence

of recurrence of peptic ulcer. It would appear the hyperparathyroidism was not related to peptic ulcer disease in this case.

The pathologic findings at operation or autopsy in hyperparathyroid patients was reviewed by Ostrow et al. They considered a composite series of 343 cases of hyperparathyroidism, 39 of which demonstrated peptic ulcer. Their results are listed in the accompanying table.

| PARATHYROID PATHOLOGY | | | | | |
|-----------------------|-------------------------------|----------------------------------|---------------------------------------|-------------------------|-----------------------|
| | Single Adenoma Per Cent | Multiple Adenomas Per Cent | Polyendocrine Adenomas Per Cent | Hyperplasia Per Cent | Carcinoma Per Cent |
| Entire Series | | | | | |
| 343 Cases | 86 | 5.2 | 0.6 | 7.0 | 1.2 |
| Ulcer Patients | | | | | |
| 39 Cases | 79.5 | 10.3 | 5.1 | 2.6 | 2.6 |

According to these figures, there appears to be no statistically significant difference in the type of pathology found in the hyperparathyroid patients with, and those without ulcer.

In summary, approximately 10 per cent of the patients with hyperparathyroidism will also have peptic ulcer disease. The incidence in males has been reported as approximately 20 per cent; in females approximately 5 per cent. Although hyperparathyroidism occurs in females 2:1 over males, peptic ulcer associated with hyperparathyroidism occurs 4:1 in males over females. The figures for the incidence of peptic ulcer in the general population are variable but the true incidence appears to be between 6 and 14 per cent.

The ulcer associated with hyperparathyroidism may act in any one of three ways: 1) it may heal spontaneously or after surgery while hyperparathyroidism persists, 2) it may not heal if the hyperparathyroidism is corrected, and 3) it may heal immediately on correction of the hyperparathyroidism. According to data presented, about 50 per cent of the patients with peptic ulcer experience some relief after correction of the parathyroid disease.

No cause and effect relationship between the two diseases has been established at this time. The most widely accepted theory appears to be decreased gastrointestinal motility impairs healing of an otherwise insignificant lesion of the gastrointestinal tract, resulting in peptic ulcer formation.

Conclusions

1. There is a slightly higher incidence of peptic

ulcer in patients with hyperparathyroidism than in the general population, particularly in males.

2. No definite cause and effect relationship between the two diseases has been established at this time.

3. About 50 per cent of the patients with peptic ulcer and hyperparathyroidism experience healing of the ulcer on correction of the parathyroid disease; the ulcer in the other 50 per cent does not appear to be related to hyperparathyroidism.

Editor's Note: References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 West 4th Street, Topeka, Kansas.

Tumor Conference

(Continued from page 448)

present, indicating that she was still in congestive heart failure. The first 10 days of her hospital stay were devoted to improving her cardiac status.

Dr. Robinson: Are you convinced that the liver is not full of tumor?

Dr. Hobson: A liver needle biopsy was done and it showed chronic passive congestion only. I think that the enlargement of the liver is due to congestive heart failure rather than tumor metastases. Pelvic examination showed normal external genitalia and a clean cervix. The uterus was slightly smaller than it had been before irradiation but was still enlarged. The fundus was retroverted and the adnexa were slightly indurated at the left but no masses were felt. Could we see her x-ray films?

Dr. Tice: The chest film shows an enlarged heart, and signs of decompensation greater than in her previous film, in both lung fields. There are calcific spots in the hilar region. There is no evidence of pulmonary metastases at this time. Films of the pelvis, hips, and spine also fail to show any sign of bone metastases.

Dr. Hobson: After she lost seven pounds on a cardiac regimen, she was given two units of packed red cells. On May 8, 1961, a total abdominal hysterectomy, bilateral salpingo-oophorectomy, and repair of the ventral incisional hernia were performed. The pathologic report at this time showed irradiation reaction of the uterus and adnexa and an anaplastic malignant neoplasm of the endometrium with superficial invasion. The patient tolerated the procedure very well and was discharged on the ninth post-operative day.

References

1. Charache, H.: Carcinosarcoma of the uterus. *Am. J. Surg.*, 100:522, 1960.
2. Hertig, A. T. and Gore, H.: Tumors of the Female Sex Organs. *Atlas of Tumor Pathology*, Section IX, Fascicle 33, pages 223-224, 1960.

In Memoriam

Harold M. Glover accepted life with a serenity not often found in men. His quiet, imperturbable faith was an inspiration to all who knew him. There was a spirit of dedication about him for the goal of living resembling that indescribable touch of genius sometimes seen in an artist toward his music.

This was especially apparent in Dr. Glover's attitude toward the practice of medicine. He accepted the presidency of this Society, in failing health, with an obsession for accomplishment. Even during the past two months his reverence toward medicine, the art, was constant.

On September 5, 1961, this life was ended. The president is dead.





The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

SUPPLY OF DOCTORS

Kansas maintains a relatively good showing with reference to its supply of doctors and the medical education situation, according to Dr. C. Arden Miller, dean of the University of Kansas Medical School and director of the K.U. Medical Center.

Dr. Miller has made public some figures following word of a national trend of diminishing applications for admission to the country's 78 medical schools.

The dean's report shows that the university medical school is not experiencing a decline in the number or quality of applicants. It shows that the proportion of Kansas graduates in the state is increasing.

Miller also says that there has been an increase in the number of doctors practicing in Kansas in the last five years. The increase is said to be especially notable in the number of family practitioners in small communities.

The report is based on his school's records, those of the state board of health, the *World Almanac*, the Bane report of the surgeon general's office and reports by the Association of American Medical Colleges. That constitutes a convincing amount of support.

It is fortunate that Kansas is doing so well, but residents of this state still will be concerned over the national trend. A general shortage of physicians is bound to effect the whole nation including those areas which are holding their own.—*Dodge City Daily Globe*, August 30, 1961.

SOCIALIZED MEDICINE

The impact of socialized medicine was well brought home to Ellis County through a story in yesterday's *News* to the effect it will be necessary to enlarge the social welfare quarters and the staff if the

proposal to whack social security payers to finance medical care for the aged becomes law.

As the local executive director pointed out: "Everyone over 65 will be eligible and probably most will request it."

In the county, according to his figures, there were 1,388 persons 65 or over last year and 442 between 60 and 65. This indicates there will be some 1,800 persons eligible for medical care, the cost to be deducted from workers' checks, by 1965.

Ellis County is not a densely populated unit. Projected on a nationwide basis the cost of administering, leave alone the actual expenses of care for the needy and not so needy, is so staggering as to defy the imagination.

And this brings up aspects of socialized medicine for scrutiny. The advocates of this proposed extension to the "pie-in-the-sky" concept of socializing the American economy refuse to refer to their scheme by its proper name of socialized medicine. Instead they use the term "compulsory health insurance."

Life Lines, which comes to our desk each week, makes an interesting observation on this:

"What they propose is compulsory, all right. Everybody would pay, regardless of whether he ever needed any of the medical or other health services offered. And he would pay largely on the basis of his earnings. It is compulsory, but it is not health insurance. Obviously, health cannot be insured. There is not a doctor in the world—nor politician either—who can "insure" that your health will always be good.

"Furthermore, the plan is not insurance. The principle of true insurance is to spread a specific risk over a great enough number of people so that the small premium each pays would cover the comparatively rare instances where a risk is incurred. A plan

(Continued on page 459)



Blue Shield

Blue Shield Benefits

The second annual enrollment of federal workers under the Federal Employee Health Benefits Legislation is taking place this month. There have been several changes in the Blue Shield benefits under this special program for Federal Employees, along with a number of new benefits in both the high level and low level programs which will be of special interest to Kansas physicians.

In the first enrollment of Federal Employees under the new government program last year, Blue Cross-Blue Shield led all other organizations, with more than 55 per cent of the estimated 1,695,000 Federal workers who selected health benefits coverage. Results of the second annual enrollment being held this month will not be available for several weeks.

The new benefits in the Blue Shield program for Federal Employees include:

- Emergency first aid within 72 hours of an accidental injury (if other basic benefits are not payable.)
- Certain diagnostic examinations that are not covered by basic benefits will be eligible for payment under the "supplemental" portion of the program. The following tests will be covered in the physician's office:
 - X-ray examinations
 - Laboratory examinations
 - Basal metabolism examinations
 - Electrocardiograms
 - Electroencephalograms
 - Radioisotope examinations

It is pointed out that payment for the above tests will be made on the following basis:

HIGH OPTION 80% of the charge that exceeds
OR the first \$20.00 in a Benefit Period.
LOW OPTION 75% of the charge that exceeds
the first \$25.00 in a Benefit Period.

The \$20.00 or \$25.00, whichever the case may be depending whether the member has the HIGH or LOW option program, will be applied to the regular Supplemental Benefits deductible. If the member has already satisfied the regular deductible, the first \$20.00 or \$25.00 will be eligible for the 80% or 75% payment.

Only Blue Shield Benefits Are Discussed Here

Because Blue Shield benefits are the ones with which the physicians are the most concerned, the changes in that side of the program are the only ones being discussed here.

Other improvements in the Supplemental Blue Shield Benefits part of the program include:

- The maximum Supplemental Benefit is now \$30,000 under the High Option rather than \$20,000 (and \$10,000 under Low Option rather than \$5,000).
- The Supplemental Benefit Period will now run for 12 consecutive months (previously the benefit period ended if the member had no expense during any 90 day period).
- The deductible under Low Option has been decreased to \$150.00 (it was \$200.00). The High Option deductible is still \$100.00 per Benefit Period.

- The \$500.00 limitation on special nursing under the Low Option has been removed.
- The services of a Licensed Practical Nurse outside a hospital may be covered by Supplemental Benefits on an individual consideration basis in unusual circumstances.

There are several other minor changes that have not been described here for special reasons. However, a full description of the Federal programs is available for physicians by writing Blue Cross-Blue Shield in Topeka.

Same Benefits—Same Cost

No benefits have been reduced this year and the dues for this program will remain exactly the same through October, 1962.

An outline of the basic covered physicians' services under this Blue Cross-Blue Shield Federal Program follows:

SURGICAL CARE, consisting of:

Surgery—Operative or cutting procedures for the treatment of diseases or injuries, or for the treatment of fractures and dislocations.

Oral Surgery—Limited to surgical procedures related to the jaws and structures contiguous to the jaws but excluding procedures involving the teeth (whether impacted or not) or the structures directly supporting the teeth.

Endoscopic and diagnostic procedures—Such as cystoscopy, bronchoscopy, angiocardiography, and myelography.

ANESTHESIA SERVICE—When performed by a physician, other than the operating physician or his assistant, for surgical care or other covered service.

RADIATION THERAPY—Treatment by use of x-ray, radium, and radioisotopes.

IN-HOSPITAL MEDICAL CARE—Physicians' visits to a hospitalized bed patient for treatment of a condition other than that for which surgical care or obstetrical care is required, as follows:

If a member has the **HIGH OPTION PROGRAM**:
Up to 120 days each hospital admission.

If a member has the **LOW OPTION PROGRAM**:
Up to 30 days each hospital admission.

With these exceptions:

Benefits for treatment of pulmonary tuberculosis and of mental or nervous disorders may not exceed 30 days (High Option) or 10 days (Low Option) during any 12 consecutive months.

Maternity—Services of the attending physician and administration of anesthesia by a physician other than the attending physician or his assistant.

X-ray examinations (with film)—For a hospitalized bed patient; or when performed in the outpatient department of a hospital or in a physician's office for and within 72 hours after accidental injury.

Other diagnostic x-ray benefits are payable under Supplemental Benefits.*

Emergency first-aid treatment of accidental injury—

When provided within 72 hours after an accidental injury and for which no other Basic Surgical-Medical Benefit is payable.

Physiatry (physical therapy)—When furnished to a hospitalized bed patient by a physician, other than the attending physician, while the patient is eligible for in-hospital medical care benefits.

Laboratory and pathological examinations—For a hospitalized bed patient.

Removal of casts and of sutures for lacerations—

Removal of these is covered by the benefit paid to the physician who applied them. However, when unusual circumstances require removal by a physician other than the one who applied them, Blue Shield may determine that a separate allowance will be payable.

Watch for next month's issue of the JOURNAL in which we will describe the Blue Shield Supplemental Benefits in detail.

In filing for the basic benefits under the Federal Benefits, physicians may use the regular Blue Shield claims form.

The Eustachian tubes run from the back of your throat to your middle ear. They serve to equalize pressure on both sides of the eardrum. By swallowing, coughing, sneezing, or chewing, you draw air up the tube. It's as thick as a broom straw.

The speaker beginning his talk at a club meeting said: "My job, as I understand it, is to talk to you, and your job is to listen. If you finish before I do, just hold up your hand."

If at first you don't succeed—you're running average.

* We expect to explain these Supplemental Benefits in detail in the November issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY. Physicians who need this information sooner, write Blue Cross-Blue Shield in Topeka.



Book REVIEWS

ARTHUR E. HERTZLER: *The Kansas Horse and Buggy Doctor* by Edward H. Hashinger. 37 pp., \$2.00, University of Kansas Press, Lawrence, 1961.

This little book, coming as it does during Kansas' 100th birthday, portrays one of the state's notable physicians. Dr. Hertzler was undoubtedly a remarkable man. Every physician in the state knows of the horse-and-buggy doctor. In a recent book, *THE KANSAS DOCTOR: A Century of Pioneering*, Thomas N. Bonner placed Hertzler in perspective in Kansas' struggle for recognition in medicine. Dr. Hashinger gives us a warm and friendly treatment of the life of the country doctor from Halstead. The book is the result of the lecture given as the ninth series of the Logan Clendening Lectures on the History and Philosophy of Medicine. We get considerably more intimate glimpses of Dr. Hertzler for the simple reason the author had such close contacts with his subject who was his teacher, mentor and friend. One of the real contributions in this treatise is the bibliography of all of Dr. Hertzler's publications, which was extensive. Those who are concerned with the state's medical history, will find this a worthwhile contribution. It is not a profound treatment in any sense of the word; it was not meant to be; it is Edward Hashinger telling us about a noted surgeon.—*P.G.R.*

SYMPTOM DIAGNOSIS: By Yater and Oliver. Published by Appleton-Century-Crofts, Inc. Price \$15.00.

This book of over 1,000 pages is intended to "aid the busy physician in the diagnosis of his case by allowing him to quickly reduce the number of possibilities to a relatively small list; to prevent the oversight of important considerations; and to make the medical man more observant of the characteristics of the symptoms of disease." Not a book to "read-through" or study, it is intended as a reference book, and as such it is "not for the library but for the desk and ward, always at hand for ready information."

The quotations above are from the preface to the

book, and explain well its intent. This, the fifth edition in the thirty-fourth year since original publication, shows that it has succeeded in its intended purpose. All discussions are organized under symptoms, and are easily found. One has only to look for the symptom under consideration, and he will find many (could one ever have "all" in a single source?) possible conditions which may produce this symptom, together with brief characteristics of the disease to help in selection of the one which most closely approximates the situation presented by the patient. No space is wasted; no words are superfluous; no laboratory procedures are included; and the information included is prodigious. The book should be useful if available when needed, and should find a place in the office of many a physician who is seeing diagnostic problems.—*O.R.C.*

THE CHANGING YEARS, Madeline Gray, 273 pages, \$.95. Dolphin Books—Doubleday & Company, Inc., New York, 1958.

This author has stated facts that should be of interest to every woman—especially those nearing the menopause. Fears that women have harbored for centuries are explained in lay terms. Menopause is the main topic, however, there are chapters on other periods of women's life that clarify menopause.

An excellent book that any physician could recommend for his patients nearing the menopause.—*M.M.*

CELLULAR ASPECTS OF IMMUNITY, Ciba Foundation Symposium. Edited by G. E. W. Wolstenholme, Little, Brown and Co., Boston, 1960, \$10.50.

This is a discussion of the handling of antigens and the production of antibodies by cells, the characteristics of cell-related (delayed) hypersensitivity, of the tuberculin-type and as observed in tissue transplantation, and of the effects of antibodies on tissue cells and blood elements. This book of nearly 500 pages forms the Proceedings of a symposium held in

(Continued on page 459)



Editorial COMMENT

Kansas Children's Receiving Home

The Kansas Children's Receiving Home at Atchison has two primary functions, namely (1) to receive dependent and neglected children committed through the court, and (2) to provide psychiatric and psychological diagnosis and evaluation of children referred.

Children with sound minds and bodies under the age of 14 are eligible for commitment if they are dependent upon the public for support, or if they are abandoned, neglected, or ill treated, and their condition is a subject of public concern. The function of this unit of the institution is to provide care and treatment for the children to help prepare them for home placement. A child is usually not committed to the institution, however, if a suitable boarding home or other placement can be found for him.

Commitment is a legal process, and is initiated by a petition filed in the juvenile court. Separate juvenile court journal entry forms are used where parental rights are severed and in cases where parental rights are not severed. Any child under 16 years of age found to be dependent and neglected may be made a ward of the court and committed to, among other facilities, the State Department of Social Welfare, in instances where parental rights are not severed. When parental rights are severed, the child may be committed by the juvenile court to, among other facilities, the Kansas Children's Receiving Home, or the State Department of Social Welfare. When a dependent and neglected child has been committed to the State Department of Social Welfare, the department may place the child in the Kansas Children's Receiving Home. Pending a hearing, and before final decree, the juvenile court may also *refer* a child to the Kansas Children's Receiving Home for evaluation and recommendation back to the court within 90 days.

Children committed to the institution should remain only long enough to be prepared for placement in permanent foster homes if they cannot be returned to their own homes or relatives. The institutional

program aims at promoting the best possible physical and mental development in each child. Schooling is provided on the grounds and at the Atchison city and parochial schools. Provision is made for placement of children in adoptive homes, free foster homes, boarding homes, and work or wage homes. Details of the placements are worked out by the institutional staff and the Division of Child Welfare services through the County Welfare Departments.

The second function of the institution, namely, diagnosis and evaluation, is a step toward modernization of state and local methods of dealing with the problems of children. It is a center for psychiatric and psychological examination and evaluation, diagnosis and study of the children in areas of personality, intellectual and educational development. Its services are available to juvenile courts, county welfare departments, public agencies, such as school systems and state institutions, private agencies working with children, and parents or guardians of children. A nominal charge may be made for its services.

Applications for admission for evaluation and diagnosis should be accompanied by a social case history of the child's development and background. Necessary forms and instructions may be obtained by writing the Superintendent, Kansas Children's Receiving Home, Atchison, Kansas. Children between the ages of 6 and 16 are admitted for resident study. Those under 6 are accepted for clinical examination when the examination will not require more than 24 to 48 hours. Children who require special attention and supervision because of physical limitations or serious mental deficiency may be accepted for study on a limited residence basis for a period not to exceed 48 hours.

Upon completion of the study, a report of findings concerning the child is returned to the referring agency or individual. Transportation to and from the institution is to be furnished by the referring agency or individual.

Division of Institutional Management

To serve the institutions under its supervision, the headquarters staff of the Division of Institutional Management is divided into four sections as follows:

Consultant Services
Fiscal Services
Biometrics and Information
Administrative Services

The Consultant Services Section has consultants in the following fields: Nursing; Dietetics; Fire, Safety, and Sanitation; Social Service; Personnel; and Architectural Engineering. These consultants, each a specialist in his own field, visit the institutions on a regular basis to furnish advice, and to assist in developing uniform methods and procedures.

In addition, an Admissions Officer maintains central clearing-house records and control over applications and admissions to state social welfare institutions.

The Fiscal Services Section exercises control over funds appropriated to the institutions, making certain that funds are available and spent to the best advantage of the institutions, as well as within the policies and procedures established by the State Board of Social Welfare and the State Department of Administration.

Biometrics and Information is responsible for maintaining records and compiling statistics relating to institutional operations and populations; and for keeping employees and the general public informed on developments in the Kansas institutional program.

Kansas Press Looks at Medicine

(Continued from page 454)

to provide free medical, dental and health care, as well as medicines and other appliances, to every person in the United States just cannot be insurance."

Any way one looks at it, socialized medicine is nothing more or less than a worker-financed, government-controlled scheme of providing medical care. Its all-inclusive scope virtually marks everyone over 65 years of age as being unable to finance illness. Its socialist aspect removes the responsibility for maintaining health and taking care of medical needs from the hands of the patient and turns it over to bureaucratic godfathers.

The health and care given the ill in this country is the best of any nation in the world. During the past half century more than 23 years has been added to the lifespan of the average American. The barrier of disease is being continually pushed back. It is true medical costs, like everything else, have responded to inflation. But it is also true patients today get more for their medical dollar than ever before.

The phenomenal accomplishments and advances in care for the ill have been achieved under the system of private medicine. The best the proposed socialized system can offer is "political" in place of "private" medicine.

And if that won't be a headache, we don't know what will.—*Hays Daily News*, August 4, 1961.

Book Reviews

(Continued from page 457)

June, 1959, at the historic Abbey of Royaumont near Chantilly, just outside of Paris, France. Thirty-four participants of several countries took part, amongst them Nobel prize winners, such as Burnet, Lederberg, and Medawar, and "others, younger, (who) will be successful in the future." Some of the papers are comprehensive, such as Medawar's theories of immunologic tolerance, Dresser and Mitchison's cellular basis for the immunologic memory, and Waksman's comparative histologic study of delayed hypersensitive reactions (including tuberculin reaction, contact allergy, homograph rejection, experimental auto-allergies). Other chapters concern technics and research models only. Commonly, the open discussions provide the most interesting ideas, such as on the clonal selection theory of antibody formation or that following Kunkel's paper on multiple "auto-antibodies" to cell constituents in systemic lupus erythematosus. The volume, which is indexed, provides much insight into the mainstream of current thinking and speculation in immunology. As expected, this is not a comprehensive coverage of the field. The balance is heavily in favor of cells as antibody formers, and as reactants to grafts; intracellular infection, digestion, and immunity and clinical infection are barely mentioned.—*J.K.F.*

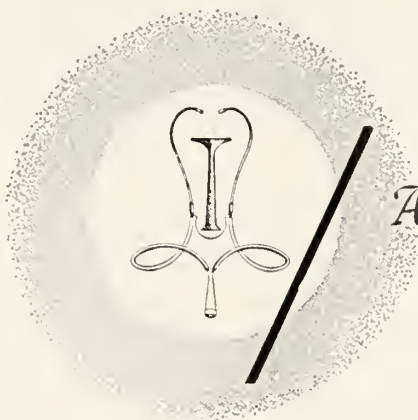
Fact or Fallacy?

You can neglect the earwax that you have in your ears. False.

Earwax probably causes more deafness than any other cause—although it's easily curable. Of course, earwax does protect your ears from dirt and dust. Don't try removing it yourself.

If you can trust a man, a contract is a waste of paper. If you can't trust a man, it's still a waste of paper.—J. Paul Getty, Billionaire

You hear low sounds more clearly than high sounds. Vowels are lower than consonants, so you hear them better.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

The 15th Annual Postgraduate Assembly, sponsored by the San Diego County General Hospital will be held on November 1 and 2, 1961, at the County Hospital, San Diego, California.

The following fields will be discussed: Surgery, Urology, Medicine, Obstetrics-Gynecology, Orthopedics, Pediatrics, Neuro-surgery and Clinical Neurology.

For full information, contact the registrar, James E. Sandell, M.D., c/o San Diego County General Hospital, San Diego 3, California.

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology and physiology on November 3 and 4, 1961, at Kansas State College, Pittsburg, Kansas. Application blanks and other information can be obtained from Dr. L. C. Heckert, Secretary of the Kansas Board of Basic Science Examiners, Pittsburg, Kansas.

A Cardiac Seminar will be held at the Sedgwick County Medical Society Building on November 26, from 9:00 a.m. to 5:00 p.m. Luncheon will be served as part of the registration fee. The seminar is sponsored by the Education Committee of the Midwest Medical Research Foundation, 3241 Victor Place, Wichita, Kansas, where applications may be mailed.

Dr. George C. Griffith, Professor of Medicine at the University of Southern California, one of the ablest speakers in the specialty of cardiology, will conduct this seminar on heart conditions in Wichita. The seminar will consist of: papers by Dr. Griffith, case presentations, clinical-pathological conferences, panel discussions, and cardiac resuscitation.

The 1961 annual convention of the National Society for Crippled Children and Adults will be held

November 17-21 at the Denver-Hilton Hotel, Denver, Colorado.

For complete information write to the National Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago 12, Illinois.

The Kansas Arthritis Conference for all physicians throughout the state will be held Sunday, October 29, in Wichita, under the sponsorship of the Kansas Chapter, Arthritis and Rheumatism Foundation.

The conference, being held without charge to all physicians attending, is the first of its kind to be presented by the Kansas Chapter.

Registration will be at 8:30 a.m. at the Medical Society Building, 1102 South Hillside, Wichita. The conference will begin at 9 a.m. and last until 5 p.m. Reservations for the noon buffet luncheon may be made before October 25 by writing to the Kansas Chapter office, 2009 East Central.

The American Thyroid Association, Inc., again offers the Van Meter Prize Award of \$500.00 to the essayist submitting the best manuscript of original and unpublished work concerning "Goiter—especially its basic cause." The studies so submitted may relate to any aspect of the thyroid gland in all of its functions in health and disease. The Award will be made at the Annual Meeting of the Association at the Roosevelt Hotel, New Orleans, Louisiana, May 9-12, 1962.

The competing essays may cover either clinical or research investigations, should not exceed 3,000 words in length and must be presented in English. Duplicate, typewritten copies, double spaced, should be sent to the Secretary; Theodore Winship, M.D., 430 N. Michigan Ave., Chicago 11, Illinois, *not later than January 1, 1962.*

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Phone CE 5-0011, ex. 297

Recent Acquisitions

Ophthalmology

Duke-Elder. Anatomy of the visual system. Mosby. 1961.

Orthopedics

DePalma, A. Clinical orthopedics. Soft tissue and tumors. Lippincott. 1961.

Reynolds, F. Instructional course lectures. 1959 and 1960.

Seven, M. J. Metal-binding in medicine. Lippincott. 1960.

Simon, H. J. Attenuated infection. Lippincott. 1960.

Young, H. H. Year book of orthopedics and traumatic surgery. Yr. Bk. Pub. 1961.

Pathology

Anderson, W. A. Synopsis of pathology. Mosby. 1960.

Moyer, W. A. Edema mechanisms and management. Saunders. 1961.

Sodeman, W. A. Pathologic physiology. Saunders. 1961.

Pediatrics

Lamm, S. S. Pediatric neurology. Landsberger. 1959.

Schaffer, A. J. Diseases of the newborn. Saunders. 1960.

Pharmacology

American Pharmacy Assn. The future of pharmacy. 1961.

Beckman, H. Year book of drug therapy. Yr. Bk. Pub. 1961.

Fein, H. D. Modern drug encyclopedia. R. H. Donnelly, 8th ed.

Physiology

Macfarlane, R. G. Functions of the blood. Academic Press. 1961.

Physical Medicine

Hassard, G. H. Elongation treatment of low back pain. Thomas. 1960.

Radiation and Radioactivity

Hollaender, A. Radiation biology. V. 2 and 3. McGraw-Hill. 1955 and 1956.

United Nations Proceedings of the 2nd U.N. Conference of the Peaceful Uses of Atomic Energy. 1958.

Respiratory System Diseases

Moersch, H. J. Diagnosis and treatment of diseases of the trachea and bronchi. Thomas. 1960.

Surgery

Artz, C. P. Complications in surgery and their management. Saunders. 1961.

Mulholland, J. H. Current surgical management. Saunders. 1961.

Urology

Scott, W. W. Year book of urology 60/61. Yr. Bk. Co.

White, A. G. Clinical disturbances of renal function. Saunders. 1961.

Would you like to have the librarian research articles for you on a medical problem?

Remember, books and periodicals will be sent anywhere in the state. We will advise you of the cost which is at the rate of four cents for the first pound and one cent for each additional pound.

Material is loaned for one month, with a month's renewal period. After that time we will appreciate your returning the material unless you have been granted an extension.

It is always a pleasure to serve you.



Personalities —IN KANSAS MEDICINE

Several Wichita physicians visited the Kiser Foundation Medical Center in Honolulu, Hawaii, during the summer. **Dr. Lilia M. Rodriguez** served as Consultant in Internal Medicine for the month of June. **Dr. Benjamin M. Matasar** was Consultant in Internal Medicine for the month of July. **Dr. Alfred M. Tocker** was Consultant in Surgery for July. Dr. Tocker addressed the staff of the Kiser Foundation on July 14 on the subject, "Open Heart Surgery."

Dr. F. K. Bowser, native Ness Citian, closed his practice at La Crosse after 10 years, and has moved his family to Joliet, Illinois, where he has accepted a two-year residency in anesthesiology.

Two Kansas City area physicians took part in round table discussions at the annual meeting of the American Academy of Pediatrics in Chicago, September 30—October 5.

They are **Dr. Herbert C. Miller**, Department of Pediatrics, University of Kansas Medical Center, and **Dr. Daniel C. Darrow**, 5847 Howe Drive, Mission.

The American College of Obstetricians and Gynecologists held a meeting on September 13 and 14, at the Town House in Kansas City, sponsoring a Conference on Obstetric, Gynecologic, and Neonatal Nursing. **Dr. J. S. Menaker**, Wichita, is Chairman and Program Chairman for the Meeting and **Dr. R. A. West**, Wichita, is a Co-Chairman. **Dr. L. E. Woodard** is among the Wichita physicians to attend the meeting.

Dr. R. A. Dobratz has taken a three-year leave of absence to complete his three-year residency in internal medicine and cardiology at Mercy Hospital, Colorado University Medical Center, Denver.

Dr. Emil L. Goering, general practitioner in Pretty Prairie for the past 18 months, has joined the practice of **Dr. M. E. Nunemaker** and **Dr. John Blank** on a part-time basis. He will maintain his residence and office in Pretty Prairie.

Dr. J. W. Cheney of Wichita is retiring after 63 years in the career of medicine.

Dr. Kale Gentry is associating with **Dr. John O. Baeke** and **Dr. Merrill D. Athon**, all of Overland Park.

Dr. Don Miller, Assistant Professor of Surgery at the University of Kansas Medical Center, lectured recently at a seminar program held at St. Joseph Hospital, Wichita. Physicians throughout Sedgwick County attended this seminar, which included lectures on cardiac functions from a surgeon's standpoint, aspects of a thyroid disease, and surgical aspects of trauma to the chest. Dr. Miller was a guest of **Dr. L. W. Purinton**, Wichita.

Reverie is the Sunday of thought.

—*Frédéric Amiel*

NEW MEMBERS

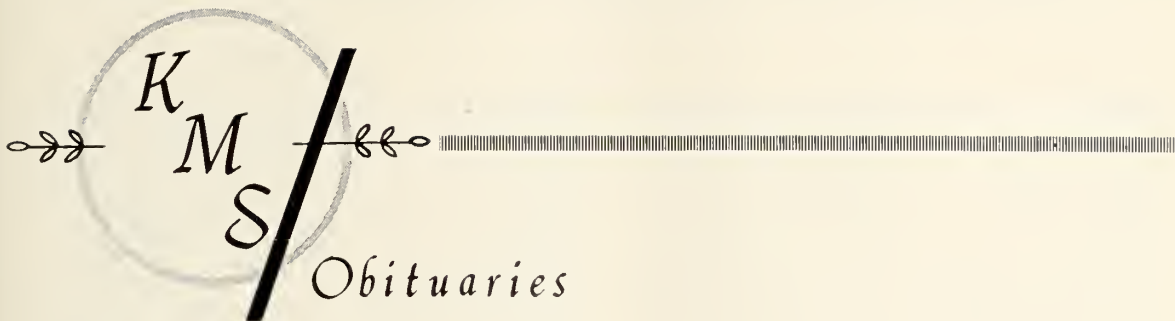
The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Keith W. Gallehugh,
M.D.
1400 Polk
Great Bend, Kansas

Gordon E. Maxwell, M.D.
135 East Claflin
Salina, Kansas

George E. Miller, Jr.,
M.D.
135 East Claflin
Salina, Kansas

William A. Smiley, Jr.,
M.D.
1011 Center Avenue
Goodland, Kansas



HARRY L. CHURCH, M.D.

Dr. Harry L. Church, 67, physician and surgeon in Pittsburg, died August 10 at Mt. Carmel Hospital after a long illness.

Born August 25, 1893, in Lebanon, Indiana, Dr. Church went to Pittsburg in 1920 following World War I service. He graduated from the University of Kansas School of Medicine in 1920. Dr. Church was a member of the First Methodist Church and was prominent in fraternal affairs.

Survivors include his stepmother, one brother, one sister and a niece.

GEORGE J. P. GISH, M.D.

Dr. George Gish, 84, general practitioner nearly 60 years, died in his home at Frontenac on August 15.

He was born December 1, 1876 at Wheeling, Missouri, and graduated from Barnes Medical College in St. Louis in 1901. He practiced briefly in Liberal before opening an office in Minden. After 40 years' work there, he moved to Frontenac and practiced 20 years before his retirement two years ago.

He is survived by two sons, Charles Perry Gish and Thurman M. Gish, both of Leawood, Kansas, and two grandchildren.

HAROLD M. GLOVER, M.D.

Dr. Harold M. Glover, 73, Newton, died September 5. He was president of the Kansas Medical Society.

Dr. Glover was born in 1887 in New Jersey and in 1916 he graduated from the University of Illinois College of Medicine at Chicago. Dr. Glover, a retired surgeon, had been a staff member of the Axtell Clinic in Newton.

He is survived by one son, two daughters and several grandchildren.

LEONARD S. WAGER, M.D.

Dr. L. S. Wager, 88, long-time physician of Florence, died August 26, at Wadsworth V. A. Hospital.

He was born October 14, 1872, in Onida, Illinois. In 1901 he graduated from the College of Physicians and Surgeons at Kansas City. He practiced medicine in Florence 41 years and retired from his profession in 1943. He was a veteran of the Spanish-American War and World War I, and was a member of the Methodist Church at Florence since 1905.

Survivors include his wife, Bertha V., two daughters, one son and three grandchildren.

The Kansas Medical Society—1961-1962

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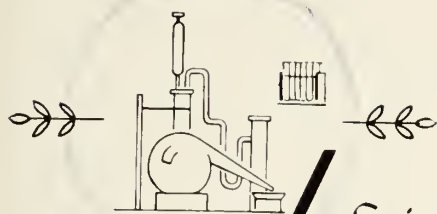
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| A.M.A. Alternate, 1961-1963..... | Glenn R. Peters, Kansas City |
| Chairman of Editorial Board..... | Orville R. Clark, Topeka |

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| Osage..... | Niles M. Stout, Lyndon..... | J. L. Ruble, Jr., Overbrook |
| Osborne..... | J. E. Hodgson, Downs..... | J. E. Henshall, Osborne |
| Pawnee..... | William R. Brenner, Larned..... | S. T. Coughlin, Larned |
| Pottawatomie..... | | Fred E. Brown, St. Marys |
| Pratt-Kingman..... | Samuel Zweifel, Kingman..... | F. P. Wolff, Pratt |
| Reno..... | I. L. Perkins, Hutchinson..... | J. C. Schroll, Hutchinson |
| Republic..... | H. D. Doubek, Belleville..... | Perry U. Hunsley, Belleville |
| Rice..... | Lewis T. Bloom, Sterling..... | P. E. Beauchamp, Sterling |
| Riley..... | George S. Bascom, Manhattan..... | W. Graham Calkins, Manhattan |
| Salina..... | C. J. Weber, Salina..... | S. C. McCrae, Salina |
| Sedgwick..... | William J. Reals, Wichita..... | J. Walker Butin, Wichita |
| Seward..... | Otto F. Prochazka, Liberal..... | Jess W. Koons, Liberal |
| Shawnee..... | R. Dale Dickson, Topeka..... | Richard Beach, Topeka |
| Smith..... | Lafe W. Baur, Smith Center..... | V. E. Watts, Smith Center |
| South Central Tri-County..... | | K. E. Voldeng, Wellington |
| Stafford..... | O. W. Longwood, Stafford..... | C. Everett Brown, Stafford |
| Washington..... | | L. L. Huntley, Washington |
| Wilson..... | Ralph N. Sumner, Fredonia..... | C. E. Stevenson, Neodesha |
| Woodson..... | A. C. Dingus, Yates Center..... | H. A. West, Yates Center |
| Wyandotte..... | William W. Abrams, Kansas City..... | James G. Lee, Kansas City |



Scientific ARTICLES

Detection of Cancer

The Interrelationship of Dentists and General Practitioners in the Detection of Cancer

I. PHILLIPS FROHMAN, M.D., *Washington, D. C.*

WHEN WE SPEAK of the relationship of physicians and dentists in the detection of cancer, we must more or less restrict our discussion to the detection of cancer of the face, neck and oral cavity. Since it is not usual for our professional associates in the field of dentistry to do complete physical examinations, we physicians do not expect them to find cancer of the breast, lungs, stomach or cervix. Yet, is this too much to ask? What about the complaints registered by so many patients visiting their dentists for emergency or routine dental examinations and treatment? How many times has the dentist heard the remark, "Doctor, I have a bad breath. I think my gums or teeth are causing it." Or again, "Don't you think my teeth might cause my stomach pains, since I can't chew my food properly?" Or, "I have pains in my back (or arms or hand). Do you think some infection in my gums is causing this?"

I feel quite certain that my dentist colleagues have heard all sorts of complaints blamed by patients on their teeth, gums, or anything else in the oral cavity. Some of these complaints might very well be the only clue and the cue that this patient must be seen by his family doctor for a complete checkup. Many patients will take care of their teeth, for they are

visible at all times, but will neglect the rest of their body. It is at the time when the dentist hears these complaints from his apparently healthy patient that he must suggest—no, insist—upon a complete physical examination by that patient's physician.

I firmly believe that if every dentist would take time during the first visit of a patient to listen for 15 or 20 minutes to his patient's complaints—not only those pertaining to the oral cavity, but general complaints—and allow the patient to talk about his entire physical being; and the dentist would insist that complaints other than those of the oral cavity must be investigated by a physician, I venture to guess that we physicians would detect more early cancers of the stomach, intestinal tract, lungs, breasts, uterus, and other areas than we do now.

The critical position of the dentist in cancer control and his relationship with the family physician are important in two ways. First, most of the American public have been educated to the fact that they should visit their dentist at least once a year, and thus the dentist has a better opportunity to see and examine the apparently healthy population. Second, the observant dentist will, in most instances, see patients with symptoms of oral cancer before these patients are seen by their physicians. Since the patient having oral cancer usually attributes the early lesion to faulty teeth or dentures, he commonly visits

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the dentist first. If the dentist is circumscribed in his knowledge, with a focal point of his vision, his training and his interest upon teeth alone, many cases of precancerous or cancerous lesions in the early stage will be missed completely.

Likewise, physicians may feel that there is no reason to examine thoroughly the oral cavity and, unless the patient complains of oral lesions or dental difficulties, these physicians will also miss early or late lesions. The obstetrician who is mentally intent upon delivering babies or healing a cervical erosion or performing a hysterectomy, may, in all probability, not be disturbed about the other end of his female patient: the oral cavity. The orthopedist nailing a fractured hip or reducing a fracture of the wrist may also forget that his patient has an oral cavity full of potential cancer sites. These and other physicians, in many instances, have no occasion to examine the oral cavity, and therefore early lesions and frank cancer masses may go unnoticed until spread beyond help or hope.

These reasons are no excuse for the internist, the general physician, or the dentist. All of us must seek out these lesions rather than wait for symptoms and patient complaints.

Both the dentist and the physician face a grave responsibility and obligation for thorough examination, diagnosis, treatment and care of the oral cavity. The primary duty of both professions is proper, early and accurate diagnosis. The dentist has the advantage in that he sees many thousands of patients who, since they are apparently in excellent health, rarely visit the physician. Most of them say, "Nothing bothers me. Why should I see a doctor?" Our colleagues in the dental profession are about a quarter of a century ahead of the medical profession in that they have educated their patients for many years to visit their dentist every six months or so for routine prophylactic dental care. It is regrettable that we physicians have not been as successful in our plea for regular, periodic, preventive examinations.

Five per cent of all human cancers are those of the oral cavity. Excessive exposure to wind, frost and sunshine is by far the most frequent predisposing factor in producing carcinoma of the lower lip. Cancer of the buccal mucosa is more frequent among smokers and habitual tobacco chewers than among the population in general. Poor oral hygiene, improper diet (not necessarily malnutrition), trauma and other forms of localized irritation are important etiologic factors which can be elicited from good histories taken by the dentist and the physician. Repeated trauma due to biting or malfitting dentures will produce hypertrophy of the mucous membrane and must be differentiated from true tumors. Just as important, the cause must be corrected or eliminated.

Cancers of the oral cavity, face and neck are accessible to sight and touch and should be detected early if proper examination is made. Both physicians and dentists must forever keep in mind the causative factors in producing cancer of these areas. The dentist, as well as the doctor, should and must know how to examine the neck for palpable masses in the thyroid gland and enlarged cervical lymph nodes.

All patients visiting dentists, whether for routine dental and oral checkup, or for emergency care, should have a complete blood count done! It has been stated that the high incidence of cancer of the oral cavity, pharynx and esophagus in Swedish women is due to iron deficiency, Plummer-Vinson syndrome—*anemia, achlorhydria and atrophy of the mucous membranes of the mouth and pharynx*. This is a true precancerous condition.¹

I would also suggest that a complete urinalysis on all dental patients would help greatly to uncover acute or chronic conditions of the urinary tract and diabetes. And a serology on all adult dental patients, as a part of the dental examination, would be truly preventive medicine.

Leukoplakia, papilloma fissure and ulceration about the mouth are precancerous lesions. These lesions in inherently susceptible individuals have a tendency to undergo malignant change when subjected to sufficient irritation over a long period of time. Syphilitic leukoplakia usually becomes cancer, and syphilitic warts, fissures, gumma and atrophic glossitis may also precede cancer.

Transformation of polyps of the tongue into carcinoma has been observed. Leukoplakia is a chronic, painless inflammation commonly seen, and more commonly overlooked or disregarded, in the oral cavity and larynx and may be found on the dorsum of the tongue, lip, gingiva, buccal mucosa and palate. Etiologic and predisposing factors include atrophic glossitis, vitamin A deficiency, alcohol, tobacco, syphilis, and irritation from dental appliances such as crowns and bridges. Many cases of leukoplakia can be corrected or eradicated by elimination of the cause, and it is for this reason that the physician must be as well educated and as highly interested as the dentist in cause and effect of lesions in and about the oral cavity.

Failure to recognize the existence of an abnormality could cost the patient much destructive surgery or even his life. When a lesion is seen or felt, it is mandatory that something be done about it. Procrastination—to "wait and see what develops"—may be a sentence to facial deformity or widespread cancer metastases and loss of life. The urgency for early examination and immediate remedial steps for any lesion about the face and oral cavity can best be brought home by these statistical figures:

Oral cancers include those of the lips, buccal

mucosa, gums, palate, tonsils, floor of the mouth and tongue. The five-year cure rate of all cases of the oral cavity as compiled by the American Cancer Society in 1958 are shown below in Figure 1.

The systematic exploration of the oral cavity and face for signs of infection or disease, lumps and nodules, indurations and leukoplakia, is often neglected during the physical examination. The physician who will not hesitate to do rectal examinations with a sightless finger upon most or all of his patients more often than not may skip the examination of the oral cavity with both eyes and fingertips. Examination will reveal so much with so little effort and time. The use of adequate lighting, a tongue blade or other depressor, a dental mirror, gauze, plastic or rubber gloves or finger cots are the only equipment necessary.

Begin with the face, lips, jaws, parotid glands, and the submandibular and submental areas. From this point the intraoral structures should be visualized and palpated beginning with the anterior structures and then the posterior oral structures and pharynx. A good routine procedure, always in the same order, should

be: lips, cheeks, floor of the mouth, tongue, palate, tonsillar area, posterior pharynx, retromolar area and gingiva. After careful inspection, these same areas should be thoroughly palpated with the gloved hand to find any areas of swelling, roughness, discoloration, induration, asymmetry, or change in function of the tongue. A tongue blade and dental mirror are helpful for the examination of the dorsum of the tongue after the tongue is covered with gauze and pulled forward to expose the lateral borders, as you simultaneously push the cheek laterally with the tongue blade. The dental mirror will expose the base of the tongue and pharynx.

Palpation is significantly important, both by the dentist and by the physician. By adequate palpation we can feel whether a swelling on the lip or cheek is indurated or firm, whether cystic or nodular. It is not enough for the physician to depress the tongue and ask the patient to say "ah." It is important to examine thoroughly the tongue, especially the base of the tongue, to see and feel any asymmetry or abnormal amount of lymphoid tissue on either side.

Physicians and dentists must be acquainted with

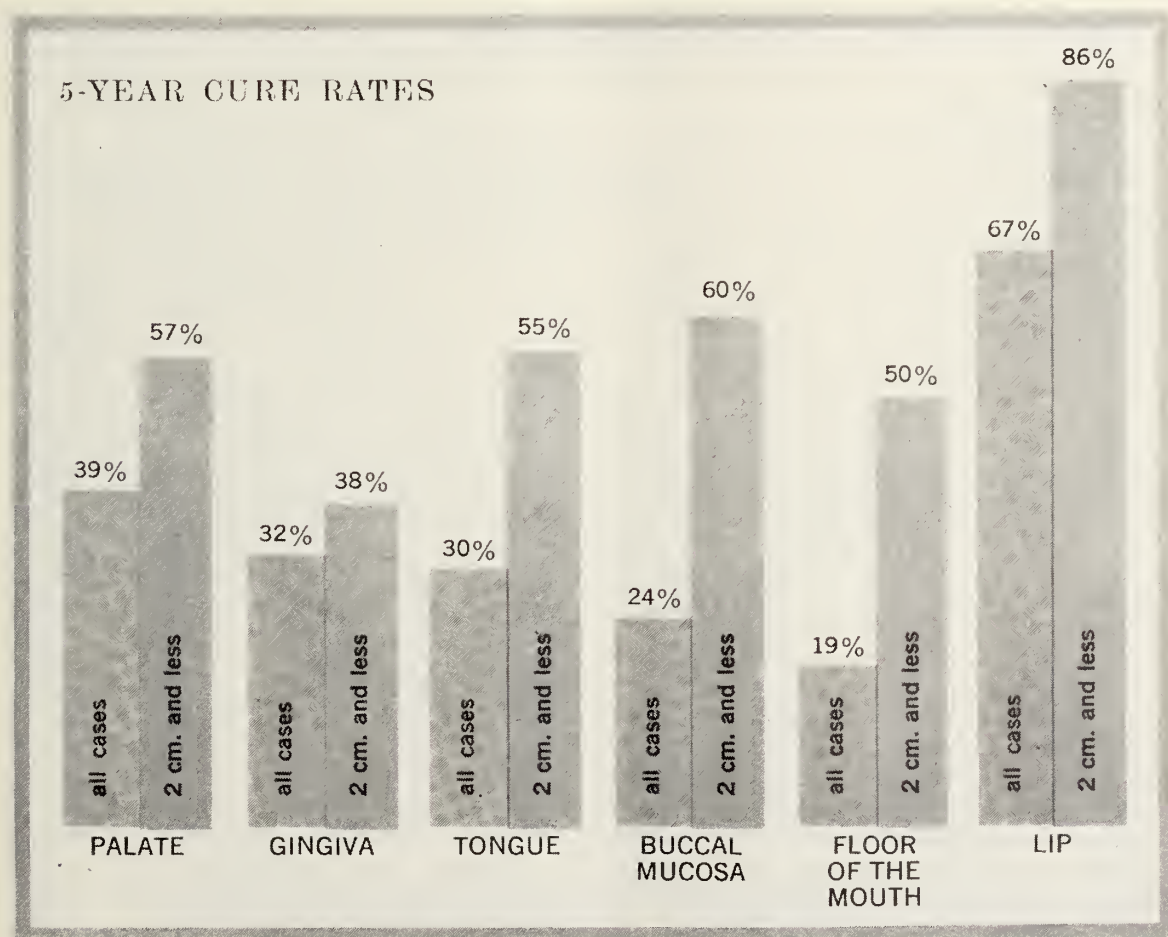
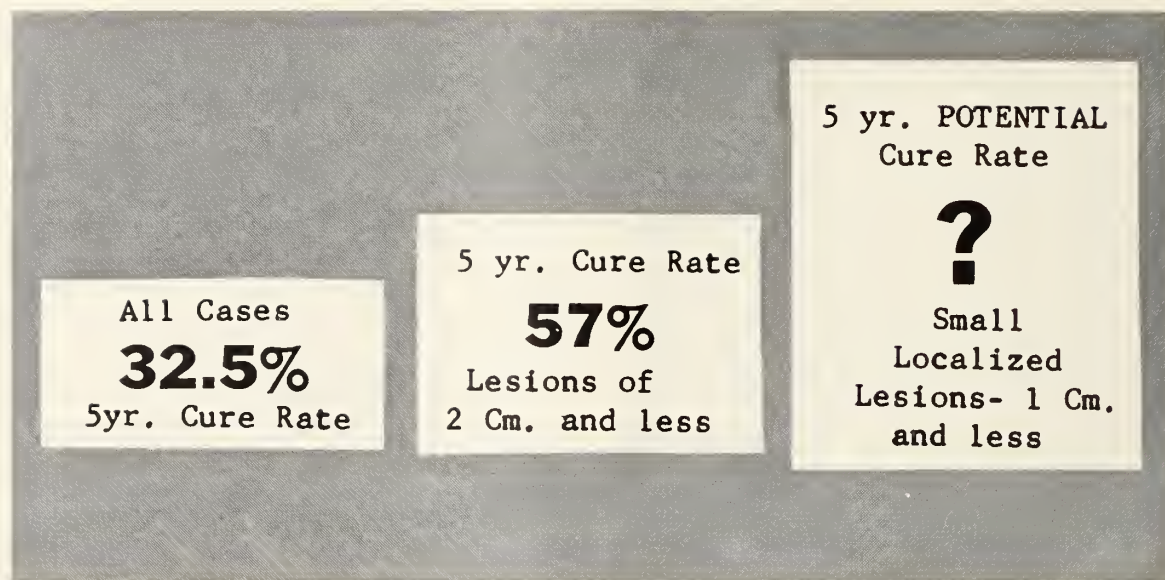


Figure 1



A CONSTANT AWARENESS=EARLY DETECTION!

5% of all cancers occur in the oral cavity

Figure 2

the various types of lesions encountered on the face, in the neck region, and in the oral cavity, including the lips. Much has been written, with excellent color plates, in various medical and dental journals. It is not the purpose of this paper to try to cover that which has been written so adequately by excellent men interested in cancer detection and eradication.

There is no excuse for either dentist or physician to miss any of these oral-facial lesions. Lack of thorough examination by either is negligence in the first degree. As with cancer elsewhere, early diagnosis is vital. Sage states that "about 40 per cent of all oral cancers have metastasized to the neck nodes at the time of diagnosis." This high incidence of metastases is more than likely due to patient procrastination and, secondly, lack of urgency on the part of the examining dentist or doctor.

Cancer, like time, waits for no man to prepare for it. We must see it, feel it, biopsy it and excise it.

The first step in obtaining necessary knowledge about the patient is the history in detail, including his present complaint or illness (if any) and past medical and dental history. The dental history should be just as important to the physician as the medical history should be to the dentist. After thorough examination of the oral cavity, any lesion should be examined in detail to attempt to determine its nature and cause. At times it may be necessary to do hematologic, bacteri-

ologic and histologic studies. The biopsy specimen is the most valuable and most used method to determine the nature of the disease process and its etiology. I believe that both physicians and dentists are much too timid in doing biopsies on small lesions, lest they subject their patients to needless excisions on benign lesions. Is it harmful to remove a normal or near-normal appendix when the signs and symptoms seem to indicate an acute appendicitis? Certainly not! Is it harmful to excise a small, suspect lesion, one to two centimeters in diameter, even though the pathologist finds it benign? Certainly not! The patient is much relieved to know he does not have cancer, and the physician or dentist should be most happy with the news. In many years of practice, I have yet to have one complaint from any patient when a biopsy report is returned from the laboratory as negative. A good example is the many thousands of diagnostic uterine D and C's done each year without the slightest patient complaint. Let's not be timid. Let's excise to be certain. Let's not "wait and see" until it is too late.

The decision to biopsy for definite diagnosis, both for the dentist or physician, resolves itself simply: If it doesn't look right, biopsy or excise it. "Periodic observation" or "let's wait and see" is dangerous in most instances. Procrastination on the

part of the patient is unfortunate; on the part of the doctor or dentist it is unforgivable.

Any ulcer which persists for two or three weeks without evidence of healing, persistent hyperkeratotic changes in surface tissue, palpable or visible mass on or beneath the normal surface tissue, any inflammatory changes which persist for prolonged periods, and any bone lesions not readily identified by x-ray or clinical observation—all of these and others—must be biopsied or completely excised. If you, as physicians or dentists, do not do these procedures, please refer patients needing such care to a colleague who does—and refer the patients NOW!

The control of cancer continues to be of great concern to all of us. Over one-quarter of a million deaths will occur in 1961 from cancer. Some of these deaths can be avoided. Oral cancer can and should be diagnosed early and removed immediately, thus eliminating it from the list of body areas producing death due to cancer. In some sections of this country, cancers of the head and neck represent ten per cent of the total cancer deaths. This is inexcusable. We must forever be observant of any deviation from normal in the skin of the face and contour of the neck, and even the slightest deviation from normal in the oral cavity. Not only must we be cognizant of these differences, but we must do something about them immediately.

The family dentist, well trained and educated in the problems of cancer detection and treatment, holds a unique place in the community for cancer detection, since approximately 50 per cent of his patients come to him without having seen a doctor for a physical examination. If the physician does not see the patient, he cannot detect cancer.

The basic interrelationship between dentists and physicians is one of mutual understanding of the goal in the detection and eradication of cancer of the neck, face and oral cavity. It is, I firmly believe, most important that the dentist procure a thorough history from his patients, not only referable to the oral cavity, but a general history of the patient's complaints of all body systems, from belching to flatus. He should note if the patient has chest pains, headaches, shortness of breath, changes in bowel habits, chronic cough, night sweats and weight loss. In other words, our colleagues should obtain a good medical history before engaging themselves too deeply in the oral cavity. By getting this type of history, more than likely a large portion of the fifty per cent of the dental patients who have not visited a doctor would be referred for medical examination and diagnosis. In this manner, a great many of the late cancers seen by us would be early cancers that could be helped, with thanks to our dental colleagues.

Likewise, the physician should and must do more than a simple, cursory examination of the oral cavity. He must refer to the dentist any and all patients who show the slightest deviation from normal in the oral cavity, whether it be teeth, dentures, ulcerations or masses.

Working together, physicians and dentists can give our patients the finest care and can produce early eradication of cancer potentials and early cancers.

References

1. Kofman, S.: Cancer of the Head and Neck, *Ann. Int. Med.* 48:731-746 (April, 1958).
2. Sage, H. H.: Oral and Facial Cancer, *New York J. Med.* 59:1113-1116 (March 15, 1959).

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere will be subsequently authorized in the discretion of the Editor.

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Footnotes and References: Use the style of the *Quarterly Cumulative Index Medicus* published by the American Medical Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

4. Doe, J. E., What I Know About It, *J. Kans. M. S.* 54:717-719 (Dec.) 1954.

Include only those references specifically referred to in the text.

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Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.

Hemodialysis

Experience in Acute Renal Failure Treated With the Artificial Kidney

W. H. TU, M.D.,* *Kansas City*

HEMODIALYSIS is a unique means for the removal of metabolic end products, exchange of electrolytes and water in the treatment of renal failure. The purpose of this communication is to describe the clinical experience with the twin coil artificial kidney¹ at the University of Kansas Medical Center during the last 2 year period from January 1959 to December 1960 and to compare these with the results obtained during the preceding 2 year period from January 1957 to December 1958. Earlier experience with the clinical application of the artificial kidney has been described previously in *The JOURNAL*.²

Results

A total of 34 hemodialyses was performed on 20 patients with acute anuria or severe oliguria (*Tables I and II*). This represents an increase in the number of patients and dialyses compared to the previous series when 11 dialyses were performed on 8 patients.

As with the previous series, potassium intoxication with advanced cardiotoxicity continues to be the major reason for hemodialysis. This was true in a total of 17 dialyses, 10 of which were done as an emergency. All the patients at the time of dialysis (except C. M. in *Table II*) had advanced uremia. Three of 10 patients who required emergency dialysis had anuria which was not due to primary renal disease (*Table II*).

The over all mortality rate of 20 patients is 56 per cent; 44 per cent in 16 patients with acute tubular necrosis, with the highest in the postoperative patients (4 of 5) and 1 survival in 4 patients whose acute anuria was not due to primary renal disease. Four of 7 deaths in patients with acute tubular necrosis were complicated by severe staphylococcal septicemia at the time of the dialysis. Duration of oliguria or anuria does not appear to be directly related to prognosis. The number of patients in this series is small but the over all mortality rate agrees with the results by others.³⁻⁷ Recently better results in a limited number of patients have been reported by maintaining patients relatively free of uremia by dialyzing them prophylactically daily.⁴

Cation exchange resin is effective in removing

potassium through the gastrointestinal tract.⁸ The merit of resin in treatment of renal failure is in prophylaxis of hyperkalemia and it should be started early before the serum potassium concentration reaches a high level and while the clinical conditions remain well. Hemodialysis remains as the

Thirty-four hemodialyses on 20 patients with acute anuria or severe oliguria were performed during the last 2 year period with the twin coil artificial kidney. There were 4 patients with primary extrarenal diseases presenting as acute anuria. A large portion of the patients were dialyzed because of potassium intoxication.

Usefulness of cation exchange resin in prophylaxis of hyperkalemia, occasional incidence of hemostatic defect due to vitamin K deficiency and experience with arterio-venous teflon cannulae have been described.

treatment of choice for potassium intoxication. In 3 selected patients orally given resin* was effective in preventing hyperkalemia during the ensuing oliguria when it was started immediately after the hemodialysis. At this time the patients were clinically improved and able to cooperate but were still severely oliguric. Resin, mixed in 20 per cent mannitol solution, was given in small divided doses of 4 to 20 Gm. totalling 40 to 80 Gm. a day.

Semipermanent cannulation of radial artery and an adjoining arm vein with a pair of teflon cannulae⁹ was used in 3 patients with good results. While patients are not on the artificial kidney this pair of cannulae is maintained open via an arteriovenous shunt without requiring heparin. Two patients remained severely oliguric for 30 days requiring 5 and 6 hemodialyses. The cannulae were placed in the arm the night before the dialysis and hemostasis was complete by the following morning. On 2 occasions the cannulae were thrombosed by the morning following cannulation. These cannulae, however, were flushed with saline-heparin solution and there was no recur-

From the Department of Medicine, University of Kansas Medical Center. This work was partly supported by the Greater Kansas City Chapter of the National Kidney Disease Foundation.

* Present address: Department of Medicine, University of Washington School of Medicine, Seattle, Washington.

* Na-cycle carboxylic resin was kindly supplied by Dr. William Martz, Lilly Laboratory for Clinical Research, Marion County General Hospital, Indianapolis, Indiana.

TABLE I
PATIENTS WITH ACUTE TUBULAR NECROSIS

| No. | Case | Age | Sex | Causes | Complications | K Intox-ication | Out-come | Days Till Diuresis† | No. of Dialysis |
|-----|--------|-----|-----|---|-------------------------------------|-----------------|----------|---------------------|-----------------|
| 1. | L. H. | 59 | M | T.U.R., Intravascular hemolysis | Pulmonary edema | + | R | 10+ | 1 |
| 2. | B. H. | 16 | M | Automobile accident | Staphylo.septicemia, lung abscesses | + | D | 9 | 2 |
| 3. | M. O. | 16 | M | Automobile accident | Renal colic, cong. hydronephrosis | + | R | 6 | 1 |
| 4. | C. H. | 58 | M | Automobile accident | | + | R | 7 | 1 |
| 5. | C. M. | 53 | M | Ruptured aneurysm of abdominal aorta, embolism to leg | Hemorrhage of upper G.I. tract | + | D | 30 | 5 |
| 6. | J. W. | 27 | F | Hemorrhagic shock at surgery | Staph. septicemia | + | D | 12 | 1 |
| 7. | J. E. | 58 | F | Hemorrhagic shock at nephrectomy for cancer | Metastasis to liver | | D | 30 | 1 |
| 8. | A. B.* | 40 | M | Postoperative shock | Fever, dehiscence | + | R | 30 | 6 |
| 9. | M. B. | 31 | M | Abdominal surgery | Staph. septicemia | + | D | 23 | 5 |
| 10. | V. F. | 26 | F | Postpartum | | | R | 12 | 1 |
| 11. | A. I.* | 19 | F | Postpartum | Uterine hemorrhage | | R | 29 | 1 |
| 12. | M. S. | 62 | F | Nephrotoxin (?) | | | R | 16 | 1 |
| 13. | J. M. | 30 | M | (Alcohol intake) | | + | R | 4 | 1 |
| 14. | S. W. | 19 | M | Upper resp. inf., fever | | + | R | 8 | 1 |
| 15. | E. E. | 46 | M | Weil's disease | | + | D | 4 | 1 |
| 16. | C. O. | 50 | M | Electric burn | Staph. septicemia | + | D | 20 | 1 |

* Prolonged prothrombin time which was corrected by vitamin K.

D: died

R: recovered

† Diuresis: 24 hour urinary output more than 1500 ml.

rence of clotting for the following month and blood flow of 300 ml. per minute could be maintained through these cannulae by a Sigmamotor without difficulty.

Illustrative Case: A 40 year old man went into a severe shock after an elective transabdominal vena cava ligation because of recurrent episodes of pulmonary embolism. His clinical course was complicated by dehiscence of the abdominal incision 5 days later requiring emergency surgery, stupor, repeated episodes of convulsive seizure and fever (*Figure 1*). Since, after 2 hemodialyses it became obvious that he would require more, teflon cannulae were placed in his forearm. Thereafter, he was placed on the artificial kidney twice a week electively for 2 weeks with steady improvement. He made an uneventful recovery after 30 days of anuria, oliguria and 6 hemodialyses.

It is generally held that prothrombin content of plasma in acute uremia may be decreased but not to

an extent to account for the hemorrhagic diathesis of uremia.^{10, 11} Two patients, however, had hypoprothrombinemia to 20 per cent of normal and manifested unusually prolonged clotting time following the usual dosage of heparin or poor hemostasis to venipuncture and uterine bleeding. These defects were promptly corrected by administration of vitamin K with rise of prothrombin level. Thus vitamin K deficiency, either probably due to inadequate oral intake or possibly due to altered intestinal bacterial flora, should be ruled out before hemorrhagic defect is attributed to uremia.

Extensive areas of tissue necrosis should be debrided surgically since repeated hemodialysis may not be adequate to prevent a rise of serum potassium derived from the damaged tissue.

Illustrative Cases: A 16 year old boy (Case 2, B. H.) became anuric after spending a night with his leg pinned under an overturned automobile. He was placed on the artificial kidney twice at 24 hour in-

TABLE II
PATIENTS WITH ACUTE ANURIA (OR SEVERE OLIGURIA**) DUE TO MISCELLANEOUS DISEASES

| Patient | Age | Sex | Presenting Symptoms and Signs | Cause | History Indicative of Underlying Disease |
|---------|-----|-----|--|---|--|
| C. M. | 44 | F | Advanced potassium cardiotoxicity, shock, anuria | Exogenous supplementary K for low serum K | Potassium intake |
| M. H. | 74 | F | Advanced potassium intoxication, coma, hypotension | Multiple myeloma | Anemia, pathological fracture, arthritis |
| M. M.* | 52 | F | Anuria, hypotension, hypokalemia | K depletion nephropathy | Habitual laxative intake and enema food sadism |
| F. S. | 59 | M | Advanced potassium intoxication, anuria, coma, shock | Bilateral renal stones | Nephrolithiasis |
| E. H. | 64 | M | Potassium intoxication, anuria, pneumonia | Periarteritis nodosa | None |

Case E. H. described previously, reference 2.
* Described in detail elsewhere, reference 12.
** Severe oliguria; 24 hour urinary output of less than 100 ml.

tervals, but his serum potassium level rose promptly to predialysis level of 8 mEq./L. soon after each dialysis. He finally died of staphylococcal septicemia and cardiac arrest. In 1960, another 16 year old boy (Case 3, M. O.), suffered from an identical automobile accident and injury to his leg. This time the

crushed leg was amputated as soon as it was found that the rise of serum potassium and blood urea nitrogen was rapid. Ten hours after the amputation hemodialysis was performed with the conventional systemic heparinization technique. The dialysis was followed immediately by oral cation exchange resin be-

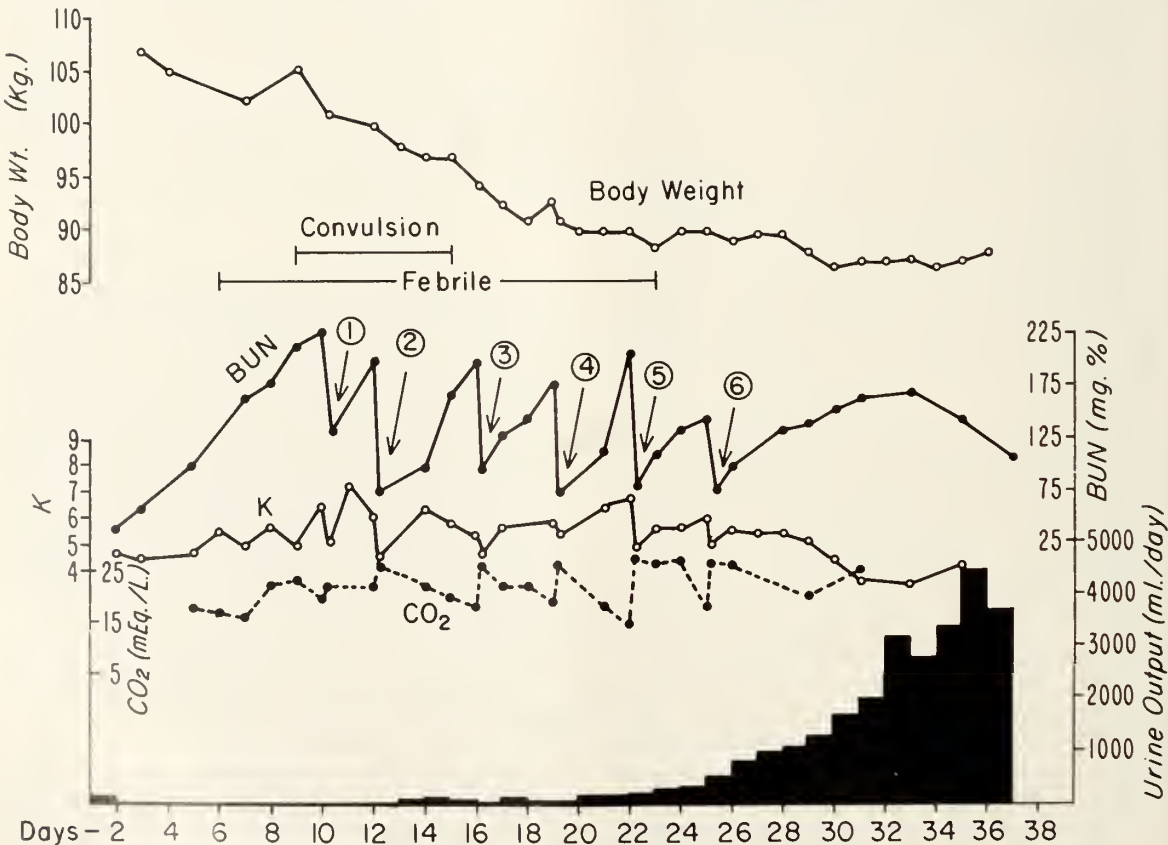


Figure 1. Patient A. B.: Arrow marks indicate hemodialysis.

cause his sensorium became clear and the nausea and vomiting disappeared. Serum potassium was maintained normal until diuresis started 3 days later. While he was passing copious amounts of urine during the diuretic phase he had several attacks of renal colic due to congenital hydronephrosis of the left kidney which had never been recognized. This was nephrectomized and he left the hospital in good condition.

In 2 patients, cases 13 and 14 (*Table I*), the cause of acute tubular necrosis could not be adequately defined. Case 13, J. M. gave a history of heavy alcohol intake followed by nausea, vomiting and oliguria. He recovered quickly. Another patient, case 14, S. W. was interesting in that the disease might have been passed as an acute glomerulonephritis if tissue diagnosis of acute tubular necrosis by needle biopsy of the kidney had not been available. He was a 19 year old boy who was in good health until he developed fever, sore throat, generalized muscle ache and weakness and nose bleed. About 11 days later he was uremic (BUN 132 mg. per cent, serum K 8.0 mEq/L.) (*Figure 2*) and hypertensive (BP 154/110). Urinalysis revealed albuminuria, red cells, white cells and granular casts. At this time he was critically ill and complaining of pain, tenderness and weakness of muscles. He was placed on the artificial kidney with clinical improvement. Several hours later needle biopsy of kidney was performed without incidence. His urinary output was never less than 800 ml. per

24 hours throughout his illness and the diuretic phase was characterized by copious urinary output exceeding 6,000 ml. per 24 hours. Biopsy of muscle (gastrocnemius) and repeated measurement of urinary excretion of mercury were normal. He made an uneventful recovery.

Four patients in the current series and one in the previous series² had acute anuria and potassium intoxication (except M. M.*) as the presenting symptoms and signs of their diseases. Pertinent data of these patients are depicted in the *Table II*. The basic diseases are: potassium intoxication, multiple myeloma, bilateral renal calculi (died of potassium intoxication before he could be dialyzed), periarteritis nodosa, nephropathy of potassium depletion. These cases suggest that etiology of acute anuria should be searched diligently when the usual etiology for acute tubular necrosis can not be found. As *Table II* indicates, diagnosis may not be difficult if careful inquiry into the history is made for possibility of diseases which may be associated with involvement of the kidneys.

References

1. Kolff, W. J. and Watschinger, B.: Further Development of a Coil Kidney, *J. Lab. & Clin. Med.* 67:969, 1956.

* Described in detail elsewhere, reference 12.

The support and encouragement of Dr. Robert E. Bolinger, Associate Professor of Medicine is gratefully acknowledged.

(Continued on page 477)

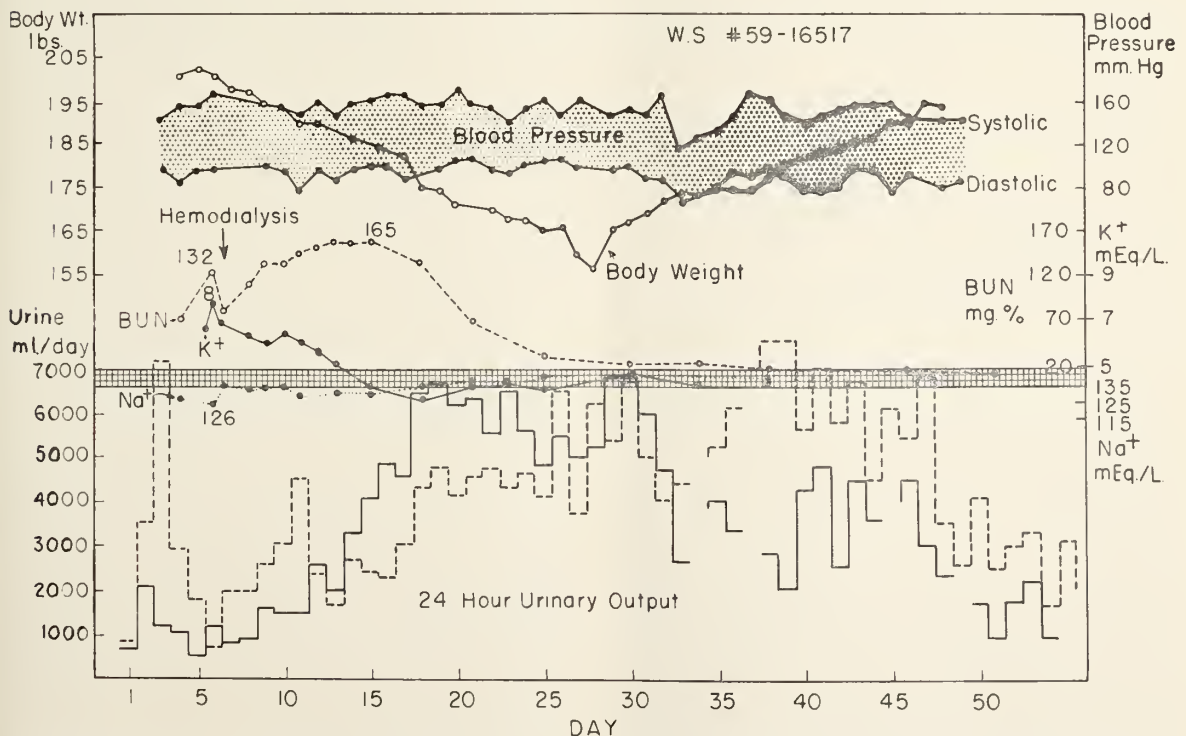


Figure 2. Patient S. W.: Solid line at the bottom of the graph indicates urinary output. Interrupted line indicates fluid intake.

Cholecystitis

Gallbladder Disease in the Geriatric Patient

W. G. CAUBLE, M.D., *Wichita*

CHOLECYSTITIS in the Geriatric patient can sometimes become a very serious and difficult problem. It is of such importance I thought it timely to present a series of cases found in my own practice and to discuss some of the salient points in caring for such patients. This series of 51 consecutive cases is a group of patients 65 years of age and older. It is small but probably represents a general picture of the problem as most of you and I see it. Since we are seeing and will see more elderly patients in the future, it behooves all of us to learn more about the care of them.

Many elderly patients have had gallbladder disease at intervals for years and some have been told that they had gallstones but either were not advised to be operated on or have failed on their own accord to seek surgical aid. A careful history on these patients will help considerably in making a diagnosis. In my own experience some have been unable to give a history themselves and it has been necessary to obtain it from relatives or friends.

In this series of 51 cases, 27 (Table I) had chronic

27 were operated and only one died following surgery. This patient was 91 years of age and was operated on as an acute abdomen. He died of a pneumonia. The average hospital stay following surgery in these cases was ten and one-half days.

It is the complicated case that concerns us mainly (Table II). Several patients know that they have had gallstones for several years and then suddenly develop severe right upper abdominal pain. They may develop jaundice suddenly and seek medical aid. It is this type of geriatric case that develops into the severe problem, both from a diagnostic standpoint as well as from a treatment standpoint.

Acute cholecystitis should be differentiated from acute pancreatitis. It may be necessary to secure a serum amylase study at times. The serum amylase may be elevated some in gallbladder disease alone but it is usually greatly elevated in pancreatic disease. It may be advisable to think of an acute cardiac condition, pleurisy or pneumonia with upper abdominal pain and we may have to consult with our internal medicine friends. In elderly patients, coexistent cardiac or other diseases may be aggravated by acute cholecystitis.¹² Perforating or penetrating peptic ulcers may cause confusion and necessitate the taking of upright abdominal X-ray studies. Mesenteric thrombosis, intestinal obstruction, internal hernias, intussusception, volvulus, right kidney disease, or tabetic crisis should be thought of. Diverticulitis or rupture of a diverticulum of the hepatic flexure may simulate acute gallbladder disease. I recently had a case in which a diverticulum of the hepatic flexure had perforated and the colon was adherent to the liver. Prior to surgery I palpated a tender mass in the region of the gallbladder and thought that I was dealing with an empyema of the gallbladder. At surgery it was found to be a perforated diverticulum of the hepatic flexure and the gallbladder was essentially normal.

A flat plate of the abdomen will frequently reveal gallstones in the right upper quadrant and many times an intravenous cholangiogram will aid in showing gallstones in the gallbladder and a dilated common duct. An example of this is shown in Figure 1. In this particular case the patient was not jaundiced, in spite of the common duct pathology associated with the acute cholecystitis. Five large stones were removed from the common duct at the time of cholecystectomy.

Acute cholecystitis is generally initiated by a stone

| TABLE I | |
|-------------------------------------|----------|
| 51 CONSECUTIVE CASES—CHOLECYSTITIS | |
| 65-91 YEARS | |
| AVERAGE AGE 73 | |
| FEMALES—35 | MALES—16 |
| CHRONIC CHOLECYSTITIS—27 | |
| (Average stay in hospital—10½ days) | |
| (one death) | |
| ACUTE OR COMPLICATED CASES—24 | |

cholecystitis. If this condition is suspected, we can use all of our usual ordinary methods of diagnosis. Many of these cases have cardiac disease or some other chronic condition and we should be able to get these patients in as good a general condition as possible prior to surgery. We can give them vitamins, especially vitamin C and other supportive treatment. I feel that it is important to keep them ambulatory as much as possible prior to surgery. In the ordinary chronic cholecystitis case, under usual circumstances, these patients do well. Walters regards operations on elderly patients with as little fear as on younger persons, provided the patients in question have been active until the onset of their illness. In this group,

TABLE II
ACUTE OR COMPLICATED CASES

| <i>Acute Cholecystitis All With Stones</i> | <i>Jaundiced Cases</i> | <i>Primary Cancer of G.B.</i> |
|---|--|--|
| 65—Emergency Cholecystostomy (did not return for removal) | C.D. explored in all T-tube | 77, 81, 65—All with stones |
| 72—Emergency Cholecystectomy | 65—Stones in G.B. Fibrosis of C.D. (2 operations) Ex- pired 2½ months after sur- gery | 2—Cholecystectomy 1—Cholecystostomy |
| 70—Emergency Cholecystectomy | | 74—Carcinoma in situ (Rup- tured) |
| 70—Emergency Cholecystectomy Lower part left in | 74—Died 5 days after surgery— Acute coronary | Living Cholecystectomy |
| 87—Emergency Cholecystectomy Died of cardiac disease 3 months after surgery | Pancreatitis Cholecystectomy | ASSOCIATED WITH OTHER CA |
| 75—Emergency Cholecystostomy Associated with Ca of stom- ach | 91—Died 7 days after surgery Uremia | 75—Acute Cholecystitis with Ca of stomach |
| 86—Cholecystectomy | Cholecystostomy | Cholecystostomy |
| Alive and well 5 years after surgery | 81—Jaundiced with Ca, G.B. No stones in C.D. | Gastroenterostomy (pallia- tive) |
| 70—Cholecystectomy | 72—C.D. stones—Living | 88—Chronic Cholecystitis + stones |
| 78—Cholecystectomy T-tube | 78—C.D. stones—Living | Ca of head of Pancreas |
| Alive 2 yrs. after surgery | 65—No C.D. stones—Living | Cholecystogastrostomy |
| 72—Cholecystectomy | Apparently passed the stone | BENIGN TUMORS OF G.B. |
| 65—Cholecystectomy | TOTAL 7 | 72—Adenomyoma |
| Exploratory of C.D. | | Cholecystectomy |
| Abscesses of G.B. bed | | 66—Multiple polyps |
| TOTAL 11 | | Cholecystectomy |

impacted in the cystic duct,¹ but we must keep in mind that it can occur without stones in approximately five per cent of all cases.² Where there is a blockage of the cystic duct, this may lead to edema and thrombosis of the venous return and eventually arterial supply, with ischemic necrosis and early perforation. Because of the condition of the blood vessels in older patients, this condition advances with more rapidity and more violence. It is conceded by several writers^{1, 3} that perforation and gangrene of the gallbladder is more common in older patients and certainly the mortality rate is higher in the older patient. Bartlett in reporting a series of 61 patients of various ages, reported five deaths in patients ranging from seventy to eighty-five years of age. These were the only deaths in the series. Hampson and others in discussing the white blood cell count in acute cholecystitis, state that the leucocyte count may be of value in assessing the individual case but serial counts are of even greater value in deciding on the possible need for emergency surgery. The differential count may also be useful since polymorphonuclear leucocytosis is the rule. Too much reliance on the level of the white cells in the circulating blood may, however, be dangerous as the acute process may go on to perforation in the presence of minimal leucocytosis. I feel

that this is particularly true when caring for the elderly patient.

Because of the rapidity with which the condition may progress, it is advisable to treat the older patient somewhat differently than we would the younger patient. Ryan in reporting emergency operations in one hundred and three patients over seventy years of age, states that the age factor in mortality is twice as important as the emergency factor, which is itself large. Delay in seeing a doctor is common in the older patient and is certainly more lethal in older patients. The geriatric patient should be gotten into the best of condition and operated. Antibiotics should be given. We should try to replace electrolytes. If the patient is toxic or anemic, whole blood should be given slowly. It may be necessary to check on the blood volume and if it is low, blood replacement may be necessary. Overtransfusion is dangerous in the elderly patient and it is much safer to give small amounts (250 cc.) slowly, daily, than it is to give rapid replacement.⁶ If the condition is subsiding the patient may be observed for twenty-four to forty-eight hours, but operation should not be delayed too long. A doctor should not be reluctant because of the patient's age, when at no age is delay more dangerous.⁸ Avoid delay in diagnosis and treatment.

In this series where there was acute cholecystitis,



Figure 1. Intravenous Cholangiogram showing Gallbladder stones and dilated Common Duct.

two had cholecystostomy and nine had cholecystectomy. Certainly cholecystectomy is the treatment of choice if it is safe to do. If the anatomy is obscure around the cystic duct and vessels, it is much safer to do a cholecystostomy. It may be safer and wiser to even leave a part of the gallbladder in. This is particularly true if there is severe edema and inflammation involving the ampulla and extending onto the cystic and common ducts. In a few of these cases the clinical diagnosis of acute cholecystitis did not agree with the pathological diagnosis even when the patient had a leucocytosis and fever with other acute symptoms. This may be due to change from an infiltration of leucocytes to round cells or lymphocytes in the gallbladder wall. This may occur between the onset of the disease and the operation. In this manner the pathologist may see nothing to warrant a diagnosis of acute gallbladder disease.

One patient seventy-seven years of age was thought to have an acute cholecystitis and was operated on as an emergency. She had known she had gallstones for forty years and at operation, done under local anesthesia, an advanced carcinoma of the gallbladder was found. Removal of the stones and a cholecystostomy was done. Carcinoma of the gallbladder was found in four of the cases. All are dead except one in which a diagnosis of carcinoma in situ was made. This one

case was ruptured at the time of operation. Preoperatively these were thought to be cholecystitis cases and all had stones. All but the one case had extension and metastasis at the time of surgery. The maximum rate of occurrence of carcinoma of the gallbladder as reported by Hardy is between sixty to sixty-nine years of age. Females are affected at a four to one rate over males. Tragerman in reviewing one hundred seventy-three cases of primary carcinoma of the gallbladder, found that it occurred most frequently between the ages of sixty-one to seventy. Seventy-nine and eight-tenths per cent of his cases had stones. In view of this we should keep this diagnosis in mind when operating an elderly patient for gallbladder disease. This is especially true if the patient has lost weight. Polyps of the gallbladder should be thought of. One (Figure 2) was found in this series. It has been shown that sometimes carcinoma can occur in

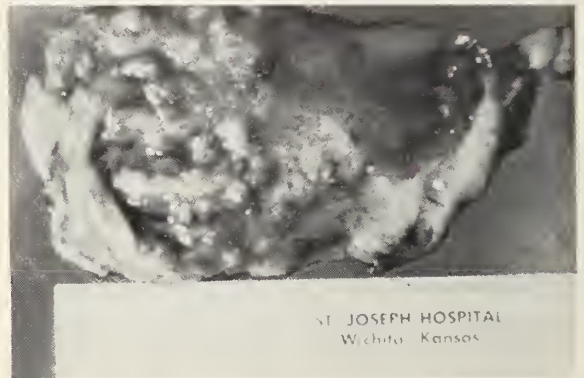


Figure 2. Polyps of the Gallbladder.

papillomas.¹¹ Other benign tumors may occur such as adenomyoma found in one case (Figure 3).

Seven patients in this series were jaundiced at the time of surgery and operation was imperative. One case was of particular interest in that her jaundice was caused by extensive fibrosis from the gallbladder and cystic duct extending onto the common and into



Figure 3. Benign Adenomyoma of the Gallbladder.

the hepatic ducts. No stones were found and biopsies revealed no carcinoma. This patient pulled her T-tube out and had to be re-operated. She later died two and one-half months after her original surgery. Four of these patients had common duct stones and two of these are living and well. One was jaundiced from a primary carcinoma of the gallbladder. One with common duct stones died four days postoperative, of an acute coronary attack proven at autopsy, and the other died of uremia seven days after surgery. It is shown by these cases that the elderly patients do not tolerate common duct surgery too well. It adds so much more to the operation. Walters states that the risk of cholecystectomy is increased three fold for the patient who is jaundiced or when stones are removed from the common bile duct.

One case, seventy-five years of age, had acute cholecystitis associated with carcinoma of the stomach and at operation a cholecystostomy and a palliative gastroenterostomy was carried out. He expired four days after surgery. Another case, eighty-eight years of age, with a carcinoma of the head of the pancreas had a chronic cholecystitis with stones. A cholecystogastrostomy was carried out. He expired twenty-one days following surgery.

Summary

In summary, fifty-one cases of gallbladder disease in patients sixty-five years of age or over have been presented. A preoperative diagnosis of cholecystitis was made in practically every case. There was one postoperative death in those having chronic cholecystitis and there were eight deaths in those having acute cholecystitis or other complicating condition including cancer. The diagnosis of acute cholecystitis has been discussed and early operation has been urged. It has been shown in this series that common duct surgery is not tolerated too well by the elderly patient. If at all possible the patient should have the best of preparation prior to surgery and with good anesthesia these patients will do well under ordinary circumstances. Cases with primary carcinoma of the gallbladder and those associated with other carcinomas have presented. Two cases with benign tumors of the gallbladder have been included. It is granted that this is a small number of cases but these reveal some very interesting pathology. In my own practice, I tell the patient with gallstones that it is like carrying around a stick of dynamite and it may explode anytime. Certainly many of these cases reveal such an explosion.

References

1. Ziffren, Sidney E.: Management of the Aged Surgical Patient, The Year Book Publisher, Inc. Chapter 5, Page 109.
2. Twiss, J. Russell: The Management of Gallbladder Disorders, The Medical Clinics of North America, March 1956, Vol. 40, No. 2, pp. 475-484.
3. Jones, Charles S., Gray S. W., Waits, E. J., Skon-

dalakis, J. E.: Management in Acute Cholecystitis, Annals of Surgery, Vol. 151, No. 5, May 1960, pp. 769-175.

4. Wright, Hastings K., Holden, William D.: The Risks of Emergency Surgery for Acute Cholecystitis, Archives of Surgery, Vol. 81, No. 3, Sept. 1960, 21/341 27/347.

5. Bartlett, Wayne C.: Acute Cholecystitis: An Analysis of Sixty-one Cases, The American Surgeon, Vol. 22, No. 1, January 1956, pp. 119-127.

6. Beal, John M.: Basic Principles in the Surgical Management of the Aged, Geriatrics, Vol. 14, No. 5, May 1959, Page 269.

7. Hampson, L. G., Dickson, J. C., Robertson, H. Roche: Emergency Surgery Involving the Biliary Tract, The Surgical Clinics of North America, Vol. 40, No. 5, October 1960, Page 1171.

8. Ryan, Peter: Surgery for Abdominal Emergencies, Geriatrics, Vol. 15, No. 2, February 1960, Page 73.

9. Hardy, Thomas G.: The Problem of Carcinoma of the Gallbladder, Virginia Medical Monthly, Vol. 87, No. 3, March 1960, Page 150.

10. Tragerman, L. J.: Primary Carcinoma of the Gallbladder, Review of 173 cases, California Medicine, May 1953, pp. 431-437.

11. Tabah, E. J., McNeer, G.: Papilloma of the Gallbladder with in Situ Carcinoma, Surgery, 34: 1953, pp. 57-71.

12. Lyon, Clayton G.: Acute Cholecystitis in Elderly Patients, The Western Journal of Surgery, Obstetrics and Gynecology, Vol. 61, February 1953, pp. 60-66.

13. Walters, Waltman: Surgical Lesions of the Biliary Tract, Archives of Surgery, Vol. 81, No. 1, July 1960, pp. 1-13.

Hemodialysis

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2. Tu, W. H. and Schloerb, P. R.: The Artificial Kidney, J. Kansas Med. Soc. 60:137, 1959.

3. Swan, R. C. and Merrill, J. P.: The Clinical Course of Acute Renal Failure, Medicine 32:215, 1953.

4. Teschan, P. E., Baxter, C. R., O'Brien, T. F., Feyhof, J. N. and Hall, W. H.: Prophylactic Hemodialysis in the Treatment of Acute Renal Failure, Ann. Intern. Med. 53:992, 1960.

5. Bluemle, L. W., Jr., Webster, G. D., Jr., and Elkinton, J. R.: Acute Tubular Necrosis; Analysis of 100 Cases With Respect to Mortality Complication and Treatment With and Without Dialysis, Arch. Intern. Med. 104:180, 1959.

6. Aoyama, S. and Kolff, W. J.: Treatment of Renal Failure With the Disposable Artificial Kidney, Amer. J. Med. 23:565, 1957.

7. Alwall, N.: On Renal Failure Complicating Surgical Diseases (Laparotomy, etc.) With Special Regard to Conservative Treatment, and the Need for the Artificial Kidney (Dialyzer, Ultrafilter) in Rational Therapy (Acute Tubular Nephritis, Chronic Pyelonephritis and Prostatic Hypertrophy With Urinary Retention.) Acta Chir. Scand., 108:95, 1954.

8. Greenman, L., Peters, J. H., Mateer, F. M., Weigand, F. A., Wilkins, D., Rhodes, G. and Danowski, T. S.: Biochemical Changes Accompanying the Ingestion of a Carbo-mylc Cation Exchanger With Hydrogen, Ammonium, Sodium, Potassium or Calcium Form, J. Clin. Invest. 30:995, 1951.

9. Quinton, W., Dillard, D. and Scribner, B. H.: Cannulation of Blood Vessels for Prolonged Hemodialysis, Trans. Amer. Soc. Artificial Internal Organs 6:104, 1960.

10. Larrain, C. and Adelson, E.: The Hemostatic Defect of Uremia. 1. Clinical Investigation of Three Patients With Acute Post-Traumatic Renal Insufficiency, Blood 11:1059, 1956.

11. Rath, C. E., Mailliard, J. A. and Schreiner, G. E.: Bleeding Tendency in Uremia, New Engl. J. Med. 257:808, 1957.

12. Tu, W. H., Jones, C. C. and Allen, M. S.: Nephropathy of Potassium Depletion; Report of a Fatal Case, Ann. Intern. Med. 53:796, 1960.

Iodide Goiter

Report of a Case

DAVID LUKENS, M.D., *Hutchinson*

THE OCCURRENCE of myxedema or goiter following prolonged administration of iodine has aroused increasing interest in recent years, and since 1945 more than 40 cases of this syndrome have been reported. The inhibition of hyperfunction and involution of a toxic goiter by exogenous iodide has been generally accepted since 1923. Although experimental evidence suggests that large doses of iodide may suppress thyroid hormone synthesis in the normal gland, this effect is transient and disappears after 26 hours. Nevertheless an occasional patient will develop goiter or myxedema after iodide treatment, and it is the purpose of this presentation to call attention to this rather unusual drug induced disease.

Case Presentation

The patient is a 36 year old female who was first examined on November 22, 1959, because of abdominal pain and severe constipation. She had suffered from bronchial asthma for 25 years, and she gave a vague history of a goiter at age 16, although thyroid enlargement was not confirmed by medical observation. In 1952 she was examined in an asthma clinic elsewhere and was given a cough medicine containing digitalis, potassium iodide and Fowler's solution. For six years she took this medication, containing potassium iodide 780 mgm. per day, and her asthma seemed definitely improved. Two years prior to our examination she experienced the insidious onset and gradual progression of crampy abdominal pains, severe constipation, cold intolerance, dryness of the skin and hair, lack of energy and hoarseness. Physical examination revealed pulse 88; blood pressure 130/85. The patient was adequately nourished, but the complexion was pallid, and her voice was quite hoarse. There was definite periorbital edema and her skin and hair were coarse and dry. The thyroid gland was firm and diffusely enlarged three times normal size, with no thrills or bruits demonstrable. The abdomen was distended and protuberant, but no masses or enlarged organs were palpable. The deep tendon reflexes were hypoactive bilaterally at the biceps, triceps, and knees. Ankle jerks were not obtainable by any method.

Preliminary laboratory data are as outlined in Table I. On January 15, 1960, thyroid biopsy was performed. Histologically the gland showed changes

The unusual syndrome of iodide goiter and myxedema is described and a case of goiter with myxedema following prolonged administration of potassium iodide is presented. Similarities and discrepancies with respect to previously described cases are discussed. Intermittent therapy of patients requiring long term administration of iodides may be helpful in the prevention of this disease.

characteristic of hyperplasia with an increased number of follicles, prominent vascularity, and papillary infoldings of the epithelium which was generally tall and columnar. The colloid content was sparse, and in some areas where follicles were small and crowded, no colloid was identifiable. Following discovery of a hyperplastic goiter, exogenous iodide was discontinued. It was anticipated that the patient would return rapidly to the euthyroid state, but two months after iodide withdrawal clinical evidence of myxedema was unchanged, and the thyroid enlargement persisted. Repeat I^{131} uptake showed no improvement, and she was given Cytomel 25 mcg. daily beginning

TABLE I

| | |
|------------------------|--|
| Serology | Non-Reactive |
| Hemoglobin | 12.2 gm% |
| Hematocrit | 39% |
| WBC | 8,550 |
| Differential | Normal |
| Urine | Clear, 1.002, Alb, Sugar, Micro Negative |
| FBS | 95 mgm% |
| NPN | 31.5 mgm% |
| Sodium | 142 mEq. L |
| Potassium | 4.7 mEq. L |
| CO ₂ | 24.0 mEq. L |
| Chloride | 119 mEq. L |
| BMR | +1 |
| PBI | Contaminated with Iodine |
| RAI Uptake | 7% in 6 hours, 3% in 24 hours |
| Chest X-ray | Normal |
| Skull X-ray | Normal |
| Arsenic (Hair & Nails) | 3 mgm / 100 gm |

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March 22, 1960, increasing to 37.5 mcg. daily on May 26, 1960. In July, 1960, the thyroid gland returned to normal size; by September, 1960, all signs of hypothyroidism had disappeared, and the patient assumed full time gainful employment in addition to caring for her home and family.

Table II shows the serial radio iodine uptake studies. On February 6, 1961, the BMR was +18, Cholesterol 213, and the PBI was still greater than 30 mcg. per cent.

The original clinical diagnosis was Hashimoto's Thyroiditis, but after the thyroid biopsy it was apparent the patient had iodide goiter with myxedema. The diagnosis of chronic arsenic intoxication was considered briefly, but this seemed to be excluded by the demonstration of only minute amounts of arsenic in her tissues. Certainly her response to iodide withdrawal and thyroid hormone replacement is typical of all previously reported cases, although she did not

and seven^{7, 15, 16} showed epithelial hyperplasia. The evidence indicates that iodine, in some normal thyroids, produces involution with colloid storage, but in a majority of cases hyperplasia is more typical. It therefore becomes necessary to distinguish between patients with previously normal thyroid glands, and those with some underlying thyroid disorder, in whom myxedema or goiter appears secondary to iodide administration. Bell¹¹ has suggested the following classification:

1. Patients with small amounts of hyperactive thyroid tissue, that is, with mild Graves' disease, either primary or recurrent following remote thyroid surgery.

2. Patients with low reserve thyroid glands: Graves' disease immediately following surgery or I¹³¹ treatment and apparently euthyroid; chronic thyroiditis; and nontoxic hyperplastic goiters with defective hormone synthesis.

3. Some apparently normal euthyroid individuals.

The present case appears to be an example of iodide goiter in a patient with defective hormone synthesis, or with inhibition of organic binding by small amounts of circulating iodide over a long period of time, from which effect she is unable to "escape." Lack of facilities prevents a more precise classification of this patient's physiological defect, however, it is reasonable to assume that her thyroid can trap iodine, but is incapable of organic binding. As to why radioiodine uptake remains low for many months following withdrawal of exogenous iodide, one can hypothesize²⁶ the presence of a depot of organic iodine, slowly releasing iodide at a level high enough to block organic binding in the thyroid gland.

An increased awareness among physicians of the iodide myxedema syndrome will undoubtedly lead to the future recognition of many more new cases. Biopsy of the thyroid gland in all suspected iodide goiters will be an important contribution to the precise diagnosis of this condition, helping to differentiate it from Hashimoto's thyroiditis and other unrelated disorders, although further study will be required to delineate the exact pathogenesis of iodide inhibition of normal thyroid function. In those patients with cardiorespiratory diseases requiring prolonged administration of iodide, intermittent therapy, with or without simultaneous administration of thyroid extract, may be helpful in preventing the appearance of myxedema or goiter.

Bibliography

1. Hurxthal, L. M.: Myxedema following iodine administration in girl aged six years, *Lahey Clin. Bull.* 4:73, 1945.
2. Bell, G. O.: Prolonged administration of iodine in the pathogenesis of simple goiter and myxedema, *Tr. Am. Goiter A. p.* 28, 1952.

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TABLE II
RADIOACTIVE IODINE UPTAKE

| Date | Clinical State | Uptake | |
|----------|-------------------------------|--------|---------|
| | | 6 hrs. | 24 hrs. |
| 12/21/59 | Myxedematous On KI | 7% | 3% |
| | Thyroid 3X normal | | |
| 3/18/60 | Myxedematous Off KI 2 mo. | 5% | 3% |
| | Thyroid 2X normal | | |
| 11/28/60 | Euthyroid On Cytomel 8 mo. | 7% | 2% |
| | Thyroid normal | | |

show the rebound thyroid hyperactivity observed in many of these patients.

The clinical picture of this syndrome is that of myxedema or goiter, or both, developing in an otherwise euthyroid patient who receives iodide in large doses over a prolonged period of time. The mechanism by which iodine exerts its depressing effect on normal thyroid function is not yet well understood. Most observers agree that excess iodide blocks organic binding of iodine on the thyroid gland, although there is evidence²⁴ that the interaction of thyrotropin and excess iodide promotes suppression of thyroid hormone secretion. Inhibition of I¹³¹ uptake by small amounts of stable iodine¹⁶ is a characteristic finding in iodide goiter, and the similarity of response to this inhibition between hyperthyroid patients²⁵ and those with iodide goiter is unmistakable.

The histology of iodide goiter is variable. In 12 patients subjected to surgery, four^{2, 4, 11, 17} had colloid storage goiter, one⁶ had struma lymphomatosa



Intractable Heart Failure

Case Presentation

THIS 46-YEAR-OLD white housewife was in an unresponsive state when she was admitted to KUMC for the first time on April 10, 1959.

For about four years before admission she had had swelling of her legs, but she had been considered to be in fairly good health until eight weeks before admission when she began to complain of nausea and weakness. These symptoms continued for about one week, and she was hospitalized elsewhere. At that time the liver was large, and there was yellow discoloration of both periorbital regions. She had upper abdominal pain and dyspnea which was markedly increased by slight exertion. After five weeks in the hospital she improved slightly and she was permitted to take thirty minute automobile rides. Three days before admission, however, she could no longer tolerate the rides. Two days before admission she developed a cough, and on one occasion dark blood appeared in the sputum. The upper abdominal pain became more severe, and her condition became progressively worse. She went into a shock-like state and was unresponsive on the afternoon of admission when she was flown here for further evaluation.

She had had occasional convulsive seizures since childhood, but these had been well controlled by drugs. She had had a cesarean section at term of her pregnancy, the date of which is unknown, but the child died shortly after birth.

Her father died of a heart attack at 63 years of age.

The patient was a well developed, thin, cyanotic, white woman who did not respond to any stimuli. The apical pulse rate was 160 per minute; respiration, 46 per minute. Her temperature was not recorded, and her blood pressure was not obtainable. The conjunctivae were pale, and there was no scleral

icterus. The pupils were small but reacted to light, and the optic fundi were normal. There was cervical venous distention. The thyroid was diffusely enlarged, soft and non-nodular. There were dullness and decreased breath sounds at both posterior lung bases. Rhonchi and crepitant rales were heard throughout the lung fields. The cardiac rhythm was irregular, and the heart tones were diminished. The second pulmonic sound was louder than the second aortic sound. There were no murmurs. There was a mid-line scar from the umbilicus to the pubis, the abdomen was distended, and there was a fluid wave. The liver was smooth and enlarged to 11 cm. from the right costal margin and 7 cm. from the left costal margin. One observer palpated the spleen. The femoral, radial and ulnar pulses were not palpable. The patient's feet and hands were cold and deeply cyanotic; there was no clubbing of the fingers. Dupuytren's contractures of the left third, fourth and fifth fingers were present. Grade IV pitting edema was present in both legs and feet, and the left leg was larger than the right. The deep tendon reflexes were absent. There was no Babinski sign.

The patient continued to have tachycardia and tachypnea, and her blood pressure could not be obtained. She died quietly about five hours after admission.

Dr. Mahlon Delp (moderator): Are there any questions?

John Hutcherson (student*): Will you describe the apex beat and its location?

Dr. Delp: The apex beat was neither visible nor palpable.

Dr. Bert Lum (student): Will you describe the auscultory findings in the chest?

Dr. Delp: Numerous rales were heard throughout the right lung posteriorly and in the upper half of the left lung. There was no dullness on the right.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

* Although a student at the time of this conference in January, 1960, he, like the others referred to as students, received the M.D. degree in June, 1960.

Breath sounds in the lower half of the left lung were markedly diminished or absent. The whole left lower lung was probably dull to percussion. Respiration was rapid and shallow.

Carl Dahl (student): Was the lateral abdominal pain localized to one side or the other?

Dr. James W. Davis (resident in medicine): There was bilateral abdominal pain.

Mr. Dahl: Was there evidence of hematuria?

Dr. Davis: No.

George Hubert (student): Was leg tenderness ever reported?

Dr. Delp: It had not been reported because the patient was unresponsive on her arrival here, but it had been noted before.

Mr. Hutcherson: When did she go into coma?

Dr. Delp: Her local doctor said that she had been hospitalized for about five weeks because of liver disease. Several minutes before his call here at 4:00 p.m. she had become pulseless, and he could not obtain her blood pressure.

Mr. Dahl: Was there a hepato-jugular reflex?

Dr. Delp: Yes.

Mr. Hubert: Was orthopnea reported?

Dr. Delp: Orthopnea was apparently not a feature of her difficulty as she had been able to sleep quietly all during her hospitalization.

L. Borgendale (student): Was there a definite line of demarcation between her cold extremities and the rest of her body?

Dr. Davis: No.

Mr. Hubert: Was there any visible collateral venous circulation of the chest?

Dr. Davis: No, there was not.

Dr. Lum: Was there a record of low-grade fever during her hospitalization elsewhere?

Dr. Delp: No. If she had had fever it apparently was low-grade and not an important part of her signs or symptoms because it was not recorded.

Mr. Hutcherson: Was any change made in her anticonvulsant medication?

Dr. Delp: She had been receiving medication for some time, and no changes had been made in them.

Dr. Wallace McKee (internist): Was the swelling of her legs which she had had for four years very marked?

Dr. Delp: It was a grade III or IV plus edema.

Dr. Lum: Did her local doctor state the cause of the edema?

Dr. Delp: No.

Dr. Lum: Did the patient complain of dyspnea?

Dr. Delp: Her husband said that she had not really complained of dyspnea on exertion, but I interpreted his description of her activities as indicating that she had become tolerant of her dyspnea, and consequently did not complain of it.

Mr. Dahl: Was a urinalysis reported?

Dr. Delp: No, a urine specimen was not obtained.

Mr. Hutcherson: Did she have a history of orthopnea and nocturnal dyspnea?

Dr. Delp: No, she did not.

Dr. Lum: Was the liver smooth?

Dr. Delp: Yes.

Dr. McKee: What was her blood pressure before her hospitalization?

Dr. Delp: It was normal.

Mr. Borgendale: Was there anything unusual about the jugular venous pulse?

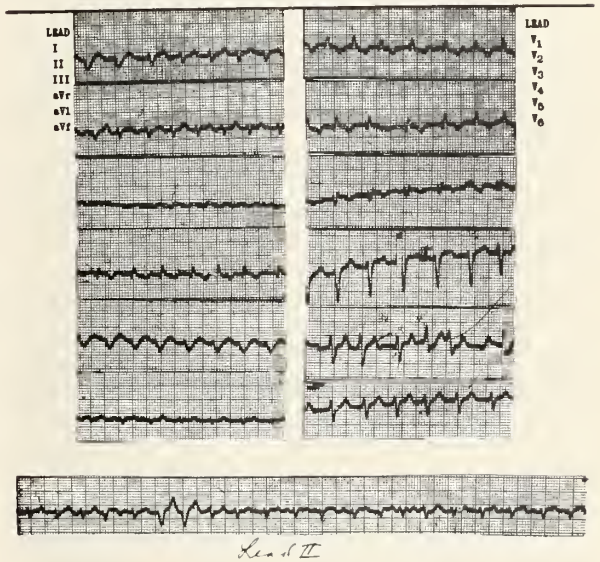
Dr. Delp: It was not a strong pulse.

Dr. Lum: Were any urinalyses taken before she was hospitalized here?

Dr. Delp: Yes, and I understand that they were negative. May we have the electrocardiogram now, please?

Electrocardiogram

Mr. Borgendale: The only electrocardiogram (*Figure 1*) of this patient was taken on the day of ad-



EKG: 1. Electrocardiogram made the day of admission.

mission which was also the day of death. It is an abnormal tracing showing a ventricular rate from 120 to 150. There is evidence of P wave activity and normal P-R interval. There is a S_1 wave in lead I and Q_3 wave in lead III. The electrical axis is perpendicular to lead III and aVF making a positive plus 50 electrical axis. Over the chest there is an upright R in lead V_1 and an rsR in lead V_2 and V_3 with a QRS interval of about 0.10 of a second. Non-specific T wave inversion is seen in leads V_1 , V_2 and V_3 . The transition zone is markedly delayed, occurring between V_5 and V_6 . I interpret these changes as compatible with an incomplete right bundle branch

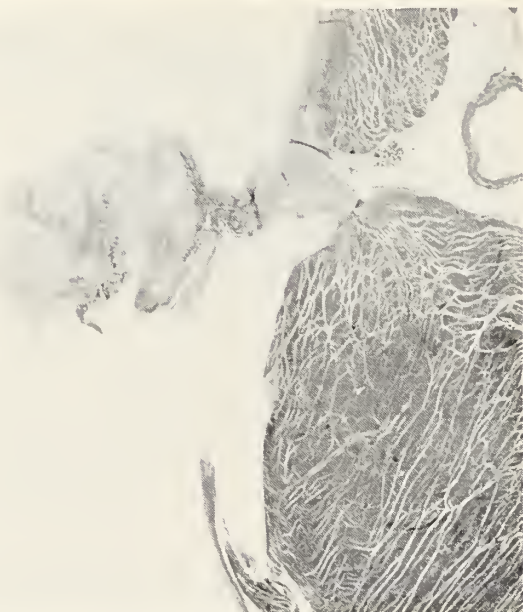


Figure 1. The mitral valve is thickened and retracted. H and E. Green filter. $\times 65$.

block and suggestive of acute cor pulmonale with evidence of paroxysmal tachycardia and clockwise rotation of the heart.

Dr. Delp: Thank you. There are no x-ray studies on our patient, so we will now have the discussion.

Differential Diagnosis

Dr. Lum: This 46-year-old white woman was admitted here with a four-year history of swelling of the legs. Eight weeks before that she had been hospitalized elsewhere because of weakness and nausea, and at that time she had hepatomegaly, dyspnea and upper abdominal pain. Two days before admission here she developed a cough and hemoptysis; and she later became unresponsive and went into shock. Physical findings at that time included tachycardia, tachypnea, irregular heart beat, absence of peripheral pulses, cervical venous distention, hepatomegaly and peripheral edema. She died five hours after being admitted.

My differential diagnosis is based on the causes of intractable heart failure in a middle-aged woman. There is no reason to suspect such common causes of heart failure as hypertensive, coronary and valvular heart diseases because these diseases usually present with an early onset of pulmonary congestion which is not seen here. Pulmonary and tricuspid valvular lesions often lead to right heart failure as manifested by our patient. The presence of shock may have masked a murmur, but there was no history of a murmur. In addition, right valvular lesions are usually associated with left valvular lesions. Congenital heart disease rarely manifests itself in later life, and the lack of any positive supporting evidence in the pa-

tient's history and physical findings makes this diagnosis untenable.

Collagen diseases sometimes produce heart failure, but are usually associated with multiple organ manifestations. There is no evidence here to support a diagnosis of hematopoietic disorders such as anemia.

Vascular disorders such as an arteriovenous fistula must be considered, but no murmurs or thrills were reported. Obstructive lesions of the inferior vena cava do not produce cervical venous distention. Primary neoplasm of the heart, such as fibroma, rhabdomyoma and sarcoma are extremely rare and have a rapid, intractable course. Myomas are slightly less rare, but are usually found in the left atrium. Murmurs and symptoms of marked pulmonary congestion are present. Metastatic lesions of the pericardium and myocardium can be ruled out because of the absence of a demonstrable primary site.

The presence of an enlarged thyroid suggests the possibility of thyrotoxic heart disease, but because of the lack of associated findings of thyrotoxicosis, I shall dismiss it as a primary diagnosis. Myxedema and other endocrinopathies can be discarded for the same reason.

Diseases producing chronic cor pulmonale such as emphysema, asthma, bronchiectasis, sarcoidosis, and the granulomatoses are unlikely because of the lack of supportive clinical and historical evidence. Primary pulmonary hypertension is manifested by exertional dyspnea, weakness, exertional precordial pain and syncope, and these symptoms usually appear early in the course of the disease. Cor pulmonale due to pulmonary embolization could be a possibility later in her course, but it is an unlikely primary diagnosis of the early failure observed.

The most common myocarditides such as those associated with infection, toxic agents and hypersensitivity reactions may be ruled out because of the lack of clinical history. A more attractive diagnosis is that of endomyocardial fibrosis which rarely presents with predominantly right heart failure because of involvement of the right ventricle. The course of the disease may vary from one month to several years duration often with minor symptoms. At times the picture is that of early left heart failure.

Another possible diagnosis is chronic constrictive pericarditis. Findings compatible with that diagnosis are effort dyspnea, hydrothorax, ascites, edema of the ankles and legs, palpitation, weakness, hepatomegaly with abdominal discomfort, cervical venous distention, nausea and vomiting. The second pulmonary sound is greater than the second aortic sound, and there are rales, an irregular cardiac rhythm cyanosis, and a palpable spleen. All of these signs and symptoms were found in our patient, and all are characteristic of constrictive pericarditis.

Under the category of metabolic heart disease hemochromatosis is an unlikely diagnosis because of

the absence of bronze diabetes. Xanthomatosis, glycogen storage disease, fatty infiltration of the heart, and toxic agents can be ruled out because of the lack of history and clinical evidence. There is no evidence of a chronic suppurative disease such as tuberculosis to support the diagnosis of secondary amyloidosis. Amyloid may be virtually localized to the heart in primary cardiac amyloidosis, but that form of the disease has been found only in patients over 60 years of age.

Primary systemic amyloidosis is characterized by the deposition of amyloid in mesodermal tissue, the cardiovascular system, the gastrointestinal tract, lymph nodes, and in smooth and striated muscles. There is minimal deposition in the liver, spleen, kidneys and adrenals which, in contrast, these are sites of maximal deposition in secondary amyloidosis. Cardiac involvement is found in 80 per cent of the cases of primary systemic amyloidosis at autopsy, and is sufficient to produce congestive failure in 50 per cent of the cases. Death occurs in about 40 per cent. In primary systemic amyloidosis there may be clinical findings of macroglossia, nodules or plaques in the skin and buccal mucosa and other skin lesions, lymphadenopathy and purpura. It has been reported, however, that in 50 per cent of the cases with congestive failure there was clinical evidence of myocardial damage alone. There have been no reported cases of recovery from primary amyloidosis. The course of the disease is extremely variable, and the average survival period is 32 months. The longest surviving patient lived for 14 years.

Heart failure can result from a variety of amyloid lesions such as diffuse or nodular myocardial deposits, infiltration of the visceral pericardium or endocardium and involvement of the valves of coronary arteries. Combined lesions occur and give rise to complex clinical pictures. In some cases constrictive pericarditis may be closely mimicked by amyloidosis of the heart resulting in restriction of myocardial contraction and relaxation. As in the case of other rare or atypical diseases, the diagnosis is largely a matter of awareness of the possibility of systemic amyloidosis.

In summary, I believe that our patient had primary systemic amyloidosis. Early in her course cardiac involvement produced a relatively mild right heart failure with subsequent progression, and severe symptoms developed eight weeks before death. At that time amyloid infiltration of the lungs and also a relatively silent pulmonary embolization could have been contributing factors. I believe that terminally there was massive, multiple pulmonary embolization which resulted in hemoptysis, shock and death. Enlargement of her left leg suggests that the emboli may have originated from the veins in that leg.

Clinical Discussion

Dr. Delp: Thank you, Dr. Lum. What is your primary diagnosis, Mr. Hutcherson?

Mr. Hutcherson: Chronic constrictive pericarditis terminating with acute cor pulmonale as a result of embolization.

Dr. Delp: Mr. Hubert?

Mr. Hubert: Primary amyloidosis.

Dr. Delp: Mr. Dahl?

Mr. Dahl: Chronic constrictive pericarditis and pulmonary embolus.

Mr. Borgendale: I believe she had endomyocardial fibroelastosis with mural thrombi which are commonly found in that disease and which, in turn, resulted in numerous episodes of embolization.

Dr. Delp: How do you explain the vascular collapse which apparently occurred during her five weeks of hospitalization, Mr. Hutcherson?

Mr. Hutcherson: It could be explained on the basis of pulmonary embolization leading to shock and coma.

Mr. Borgendale: She could have had previous episodes of pulmonary embolization and, finally, a cerebral embolus from a mural thrombus.

Dr. Delp: Five weeks before her admission here her local doctor found that her liver was enlarged, and at that time it was his impression that she was jaundiced. How do you explain that, Mr. Hutcherson?

Mr. Hutcherson: Hepatocellular damage can occur in congestive failure and engorgement of the liver. I do not believe, however, that that was of any significance in her clinical course.

Mr. Dahl: Amyloid may produce yellow papules and plaques, but I doubt that it would produce jaundice. If she had jaundice it probably was because of hepatocellular damage.

Dr. Delp: Mr. Borgendale, do you believe that the patient had pulmonary emboli five weeks before her admission here and before her original hospitalization elsewhere?

Mr. Borgendale: Jaundice is often associated with pulmonary emboli, and that could have been the reason for her first complaint of dyspnea.

Dr. Delp: How do you account for the fact that she did not have orthopnea, Mr. Hutcherson?

Mr. Hutcherson: It is compatible with constrictive pericarditis because there is no pulmonary flow to produce pulmonary congestion.

Dr. Delp: Mr. Hubert?

Mr. Hubert: Initially she probably had right heart failure which does not give rise to pulmonary congestion.

Mr. Dahl: Constrictive pericarditis limits the increase in output. Perhaps she only had slight tachycardia and dyspnea on exertion.

Mr. Borgendale: Endomyocardial fibroelastosis can cause the same physiological changes as those found in pericarditis.

Dr. Delp: There is a paucity of auscultatory findings of the heart mentioned here. What other auscultory

findings would you have wanted to hear, Mr. Hubert?

Mr. Hubert: I would have tried to hear a friction rub.

Dr. Delp: Mr. Dahl?

Mr. Dahl: Shock could have been the reason for not hearing the murmur.

Dr. Delp: Dr. Crockett, may we have your discussion, please?

Dr. James E. Crockett (cardiologist): It has been carefully pointed out that our patient appears to have had right heart disease. She did not have orthopnea, and apparently exertional dyspnea was not a significant symptom until late in her course. She had no past history of left heart disease of any type that we would be likely to diagnose. An interesting fact is that she had had swelling of her legs for four years before admission, but she was apparently considered to be in good health until about eight weeks before admission when nausea and weakness developed.

The question arises as to whether or not she had had severe varicose veins with dependent edema for several years. She was believed to be in good health, apparently, because her symptoms were recognized and not considered to be serious problems. She probably went into right heart failure, however, about eight weeks before admission, although we can not be certain of this sequence. At any rate there was a significant change in her illness about eight weeks before admission, and it must be assumed that it was either the onset of right heart failure or an intensification of right heart failure. In my opinion the electrocardiogram shows right ventricular hypertrophy rather than right bundle branch block. I believe that there was a QR wave over the right precordium rather than an rsR as would be expected. I am uncertain about the arrhythmia which was present, and although it seemed to be atrial in origin, I am not sure that it was an uncomplicated atrial tachycardia. This could represent a form of paroxysmal atrial tachycardia. It would be interesting to know whether the patient had received digitalis.

Dr. Delp: We do not know whether or not she received digitalis before her admission here.

Dr. Crockett: It seems to me that a patient with such a clinical picture must have been receiving some digitalis. She was probably acutely cyanotic for a while, but patients in such a situation become sensitive to digitalis. If her doctor became apprehensive and began to push digitalis it would be a perfect clinical situation for digitalis intoxication and this particular arrhythmia which is so frequently associated with digitalis intoxication. Constrictive pericarditis would certainly have to be considered. I am somewhat concerned about the length of the patient's illness. It is my assumption that the swelling of her legs was not related to cardiac disease.

Carcinoid syndrome must be mentioned here with

the well-recognized involvement of the tricuspid and pulmonary valve. The absence of murmurs does not particularly disturb me because she did not have an obtainable blood pressure. The blood was not coursing vigorously through the heart, and dynamic findings could have been altered considerably with the result of complete loss of pulmonary systolic murmur secondary to pulmonary stenosis.

It is my impression that the patient had had pulmonary embolization and thrombophlebitis for an undetermined period of time, and we are actually seeing here the Castlemen-Bland syndrome. I believe that her right heart failure was secondary to this condition, and that the terminal episode was probably related to a massive pulmonary embolism. I am impressed by the fact that she had a cough, and on one occasion had brought up dark blood in her sputum. Her left leg was larger than her right, but there was bilateral edema. I believe that the terminal episode was a massive pulmonary embolus producing the shock state, and the absence of auscultatory findings may have been related to the serious degree of shock and failure which was present. We might have anticipated hearing a third or fourth sound. She certainly had a loud pulmonic second sound which would be associated with either acute or chronic cor pulmonale.

Dr. Delp: Thank you. May we hear from you now, please, Dr. Rankin?

Dr. Thomas J. Rankin (internist): My one definite impression is that the patient did not have the terminal heart failure of gargoylism because she was not described as having a gargoyle-like face. The most significant thing to me is her long-standing history of a mild, relatively symptomless edema of the legs which definitely points to a chronic background to the disease from which she died. It seems that the alternatives are four: (1) she began with a primary cardiac disease of right-sided origin; (2) she began with primary hepatic disease; (3) she had thyroid disease, the thyroid being diffusely enlarged; (4) the Dupuytren's contractures of the fingers of her left hand suggest that she could have had a shoulder-hand phenomenon as a result of acute and asymptomatic coronary damage. She could also have had a low grade chronic granulomatous disease of the liver which was not an active process, and the edema which she had for four years may have been due to that. Some observers agree that the spleen was enlarged and palpable, and, in my opinion, that adds to the possibility. If one supposes that disease in the liver did exist as part of her approach, however, in order to explain the total events one would be compelled to say that she was tuberculous and return to the opinion formed by the students that she also had a constrictive pericarditis of tuberculous origin. If such were the case the suddenness of change from chronic edema of the

lower extremities to a terminal illness could induce such phenomena as Budd's cirrhosis.

If hepatic disease is considered as the background of these symptoms one must also consider the low grade persistent chronic hepatitis which is sometimes without symptoms. At autopsy it is sometimes believed to have existed with no suspicion on the part of the physician. Dr. Crockett explained the terminal cardiac findings by multiple embolizations from the edematous lower extremities and right heart failure at the conclusion of the picture. My diagnosis, however, is constrictive pericarditis.

Dr. Delp: Thank you. May we have your opinion, Dr. McKee?

Dr. Wallace McKee (internist): The most significant thing to me is the onset of the relation between the edema and the liver difficulties. The liver was enlarged on admission, and before that she had had edema. She had a hepato-jugular reflex which suggests that she may have had tricuspid valve insufficiency. It is entirely possible for an individual to have tricuspid valve insufficiency for several years and still not have too much difficulty with respiration. I assume that the enlarged liver and spleen, edema of the legs, and the tricuspid insufficiency were all present for a period of four years. There is evidence that she had pulmonary hypertension, and the question arises whether it was acute, chronic or subacute. I assume that it was present for a long time together with evidence of right heart enlargement and the increased pulmonary second sound. As a differential diagnosis of pulmonary hypertension the collagen disease, perhaps, has not been mentioned sufficiently. Periarteritis and lupus erythematosus can cause pulmonary hypertension, and these, plus the granulomatous diseases can cause a considerable amount of respiratory distress in association with the failure that might ensue. The respiratory distress is usually rather striking at first. At the other end of the lung the left side of the heart can cause difficulty. A diagnosis of mitral stenosis was not made because there were no murmurs, but I believe that the lack of murmurs is insignificant because of reasons already mentioned. The patient apparently had a normal blood pressure. I must forego the diagnosis of constrictive pericarditis. There was probably a tight non-audible mitral stenosis with pulmonary emboli and pulmonary thrombotic phenomena occurring later. I do not know whether this was embolization or thrombosis. The yellowish discoloration which is frequently found with pulmonary embolization was present.

Dr. Delp: Thank you. Dr. Dunn?

Dr. Marvin Dunn (cardiologist): The fact that this patient was a well developed and well nourished woman makes me disfavor the diagnosis of systemic disease for more than four years. If this were an hepatocellular disease of that duration I certainly

would have anticipated some muscle wasting at that stage of the disease. In my opinion the most significant physical finding is the loud second sound, and the other positive finding is the electrocardiogram which, as Dr. Crockett has pointed out, shows a QR complex at the V_1 and V_2 positions. The combination of these two findings suggests a disease that had produced pulmonary hypertension over a long period of time rather than an acute episode of pulmonary hypertension. The other possibilities, atrial septal defect and ventricular septal defect, certainly could live to this age and gradually develop pulmonary hypertension. I would have expected, however, that the last few years of the patient's life would have been associated more with cardiovascular symptoms than seem to be apparent here.

Primary pulmonary disease is another diagnosis that has not been emphasized. Castlemen-Bland syndrome has been mentioned, and I believe that it would be more compatible with the patient's general clinical course than some of the other suggestions that have been made. I believe that the patient had either Castlemen-Bland syndrome or primary pulmonary disease resulting in right heart failure and cor pulmonale, and that the terminal event was massive pulmonary embolus.

Dr. Delp: Thank you, Dr. Dunn. May we have your report now, Dr. Kliensky?

Pathological Report

Dr. Bernard Kliensky (pathologist): Major findings were in the heart and lungs. The heart weighed 340 grams and showed a moderate rheumatic mitral stenosis with fibrosis, adhesions and contracture of the valve and of the chordae tendineae. The orifice which measured $1\frac{1}{2}$ cm. in diameter, was not tightly sclerotic. The left atrium and right ventricle were hypertrophied. Mural thrombi were present in the left and right atria. A section of heart shows a thickened mitral valve (*Figure 2*) shortened, thick chordae tendineae with adhesions between the valve and the papillary muscle.

Thromboses were present not only in the left iliac but in the left ovarian vein (*Figure 3*). Ovarian veins are frequently the source of thrombi and emboli. The thrombi were organizing at the periphery, but were fairly fresh centrally. If a recent embolus had occurred from some of this fresher central area, there would be no way microscopically of detecting it as thrombus. A fresh blood clot in the pulmonary arteries would be all that would be found. There were a number of vessels in the lung where one could see blood clots both grossly and microscopically, but none could be proved to be of a definite ante mortem status. No older emboli were present, but there were some areas of hemorrhage, particularly in the right lower lobe, and some areas of actual infarction.

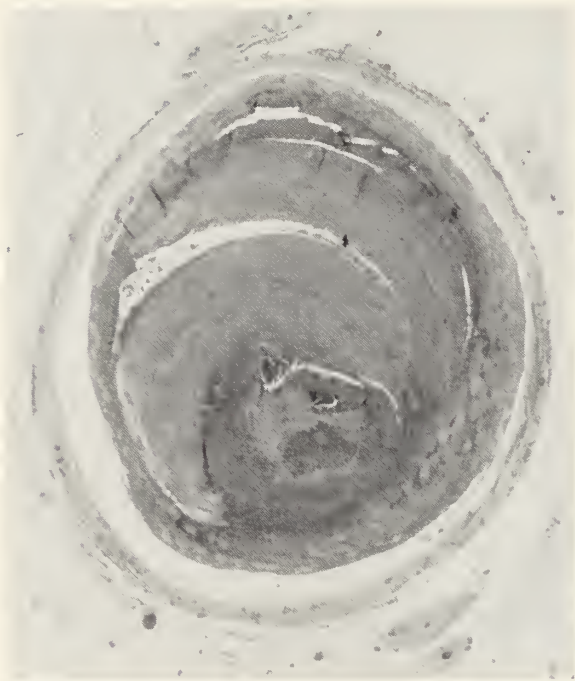


Figure 2. Ovarian vein is filled by a laminated thrombus. H and E. Green filter. $\times 12$.

The left lung showed a different process. There was 3,000 ml. of fluid in the left thorax, and the left lower lobe was completely atelectatic. Multiple nodules were noted grossly in the vicinity of bronchi and blood vessels in the left upper lobe only. There were a few relatively fresh thrombi in small branches of hepatic veins, and there were some areas of fresh necrosis within the liver, presumably caused by a combination of venous stasis and systemic shock.

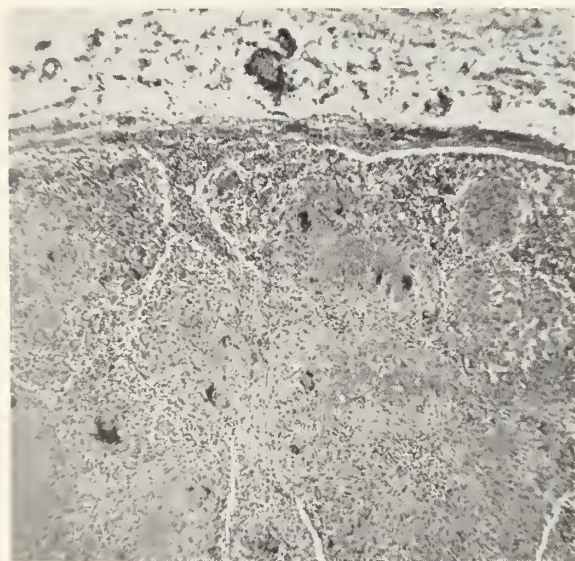


Figure 3. Lymph node containing multiple noncaseating granulomas. H and E. Green filter. $\times 63$.

There were no older lesions within the liver to explain the previous jaundice. The relatively slight degree of congestion in the liver might suggest that heart failure was not advanced and that the edema in the extremities may have been related, at least in part, to the venous thromboses.

The lymph nodes (Figure 4) and the peripheral areas of the lung contained multiple granulomatous nodules, usually discrete, occasionally confluent. No caseation was present; histiocytic giant cells were found. High power views of a granuloma and giant cells showed some suggestive inclusions which could not be identified. The morphology is consistent with the diagnosis of sarcoidosis. Multiple sections were stained with auramine-rhodamine and examined under the fluorescent microscope for acid-fast bacilli. Special stains for tubercle bacilli, fungi and bacteria were negative. Polarizing microscopy revealed a small amount of silica at the periphery of anthracotic nodules. The quantity of silica is not sufficient to produce the granulomas. There was no crystalline material to suggest berylliosis.

Granulomatous nodules which were found in the left atrium of the heart (Figure 5) have been described in approximately 20 per cent of cases of sarcoid. It is believed that they tend to follow the bronchi and pulmonary veins to the hilar area of the lung

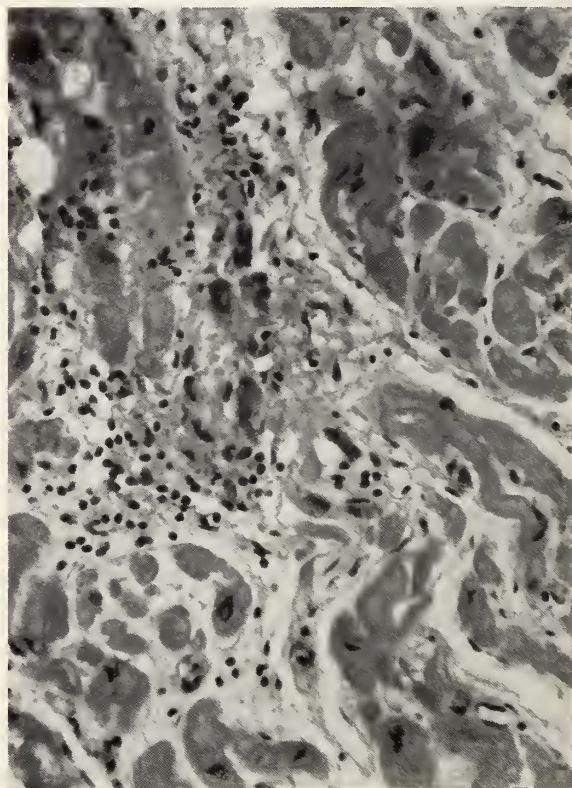


Figure 4. A focus of granulomatous inflammation in the myocardium. H and E. Green filter. $\times 290$.

and to the pericardium and atria. Sometimes constrictive pericarditis and extensive cardiac involvement are present in sarcoidosis. In this case the cardiac involvement was so slight that little significance can be attributed to it.

The diagnosis of sarcoidosis is one of exclusion; it should not be made until the necessary historical, clinical, cultural and morphologic investigations have failed to identify a specific etiologic agent. This lesion was not recognized in time for all of these studies to be performed, but is compatible with sarcoid.

In review and in retrospect, the patient had multiple factors contributing to pulmonary hypertension and right heart failure; moderate mitral stenosis of long standing, the sarcoid-like granulomatous process and, terminally, pulmonary emboli.

Dr. Delp: Thank you, Dr. Klionsky. It is my own opinion that the patient had rheumatic valvular heart disease. She died for essentially the same reason and at about the same time that most patients with chronic rheumatic valvular heart disease die. The usual clue to this is, of course, the presence of valvular heart sounds and murmurs which, in this case, were not heard. I cling to the explanation that the murmurs were not heard because of the patient's degree of peripheral and general vascular collapse. That fact should always be uppermost in our minds when we see a patient in such a condition. Murmurs could be there under other circumstances, and rheumatic heart disease is a common type of heart disease. Although the sarcoidosis is an interesting finding, I do not attach much significance to it.

Pathological Anatomical Diagnosis

HEALED RHEUMATIC VALVULITIS OF THE MITRAL VALVE, with mitral stenosis, moderate and mitral insufficiency, slight.

FIBROCASEOUS GRANULOMAS of the upper lobe of the left lung and of the hilar lymph nodes, multiple (compatible with SARCOIDOSIS).

Granulomatous myocarditis, focal, slight.

Hypertrophy and dilatation of the left atrium, moderate; of the right ventricle, slight; dilatation of the right side of the heart, moderate.

Mural thrombosis of the left auricular appendage, advanced; of the right auricular appendage, slight.

Thrombosis of the left iliac and left ovarian veins, advanced.

RECENT INFARCTIONS OF THE LOWER LOBE OF THE RIGHT LUNG, multiple, advanced.

References

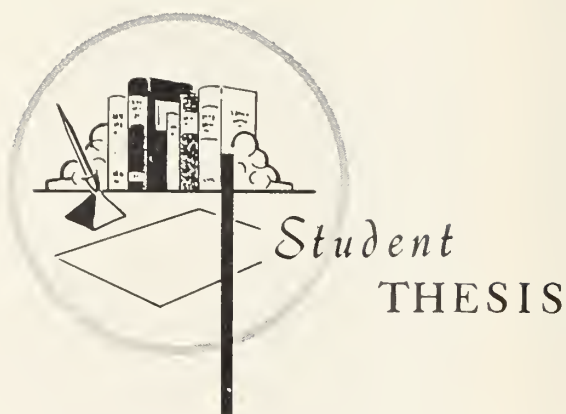
- Freiman, O. G., Sarcoidosis, *New Eng. J. Med.*, 239:664-671, 709-716, 743-749, 1948.
- Longcope, W. T. and Freiman, D. G., A Study of Sarcoidosis, *Med.*, 31:1-132, 1952.
- Ricker, W. and Clark, M., Sarcoidosis: A Clinico-

pathologic Review of Three Hundred Cases Including 23 Autopsies, *Am. J. Clin. Path.*, 19:725-749, 1949.

Iodide Goiter

(Continued from page 479)

- Raben, M. S.: Endocrine conference, *J. Clin. Endocrinol.* 13:469, 1953.
- Morgans, M. E., and Trotter, W. R.: Two cases of myxoedema attributed to iodide administration, *Lancet* 2:1335, 1953.
- Goldner, M. G.: Clinical conference on metabolic problems: Iodide-myxedema, *Metabolism* 4:545, 1955.
- Turner, H. H.: Goiter induced by iodide in children, *South. M. J.* 49:1443, 1956.
- Turner, H. H., and Howard, R. B.: Goiter from prolonged ingestion of iodine, *J. Clin. Endocrinology* 16:141, 1956.
- VanderLann, W. P.: Myxedema and goiter attributed to iodine ingestion in a patient subsequently developing hyperthyroidism, *Metabolism* 5:640, 1956.
- Skaggs, J. T., and Cooke, R. A.: Transient myxedema produced by prolonged ingestion of saturated solution of potassium iodide, *J. Allergy* 27:377, 1956.
- Hydovitz, J. D., and Rose, E.: Goiter and myxedema following prolonged ingestion of iodine: report of a case with evidence of unusual thyroid dysfunction, *J. Clin. Endocrinol.* 16:1109, 1956.
- Bell, G. O.: Iodine, goiter, and myxedema, *Lahey Clinic Bull.* 10:141, 1957.
- Rubenstein, H. M., and Oliner, L.: Myxedema induced by prolonged iodide administration, *New England J. Med.* 256:47, 1957.
- Nixon, P. G. F.: Recurrent myxoedema and goitre attributed to potassium iodide, *Brit. M. J.* 1:748, 1957.
- Herbert, E. M., and Petrie, E.: Myxoedema attributed to iodides, *Lancet* 1:108, 1954.
- Paley, K. R., Sobel, E. S., and Yalow, R. S.: Some aspects of thyroidal iodine metabolism in a case of iodine-induced hypothyroidism, *J. Clin. Endocrinol. and Metab.* 18:79, 1958.
- Paris, J., McConahey, W. M., Owen, C. A., Jr., Woolner, L. B., and Bahn, R. C.: Iodide goiter, *J. Clin. Endocrinol. and Metab.* 20:57, 1960.
- Burrows, B., Niden, A. H., and Barclay, W. R.: Goiter and myxedema due to iodide administration, *Ann. Int. Med.* 52:858 (April) 1960.
- Dowling, J. T., and Becker, F. F.: Hydriodic acid-induced myxedema followed by recovery and thyroidal failure, *Arch. Int. Med.* 105:884, (June) 1960.
- Plummer, H. S.: Results of administering iodine to patients having exophthalmic goiter, *J.A.M.A.* 80:1955, 1923.
- Morton, M. E., Chaikoff, I. L., and Rosenfeld, S.: Inhibiting effect of inorganic iodine on the formation in vitro of thyroxine and diiodotyrosine by surviving thyroid tissue, *J. Biol. Chem.* 154:381, 1944.
- Wolff, J., and Chaikoff, I. L.: Plasma inorganic iodide as a hemostatic regulator of thyroid function, *J. Biol. Chem.* 174:555, 1948.
- Stanley, M. M.: The direct estimation of the rate of thyroid hormone formation in man. The effect of the iodide ion on thyroid iodine utilization, *J. Clin. Endocrinol.* 9:941, 1949.
- Wolff, J., Chaikoff, I. L., Goldberg, R. C., and Meier, J. R.: The temporary nature of the inhibitory action of excess iodide on organic synthesis in the normal thyroid, *Endocrinology* 45:504, 1949.
- Greer, M. A., and DeGroot, L. J.: The effect of stable iodine on thyroid secretion in man, *Metabolism* 5:682, 1956.
- Feinberg, W. D., Hoffman, D. L., and Owen, C. A., Jr.: The effects of varying amounts of stable iodide on the function of the human thyroid, *J. Clin. Endocrinol. and Metab.* 19:567, 1959.
- Paris, J.: Personal communication.



Phenylketonuria—An Inborn Error of Metabolism

DAVID A. BALL, M.D., *Kansas City, Missouri*

OVER THE COURSE of several centuries physicians have gradually gained more complete understanding of numerous disease states. These advances have come only as the etiological factors in disease were understood. As medicine emerged from the realm of magic, rational theories of etiology were sought. At first the causes of disease were explained in terms of gross, morphological changes in the body and its organs. With the advent of the microscope, disease was studied at the level of the cell. In our own century the techniques of biochemistry and genetics have made it possible for physicians to trace the etiology of a certain number of diseases to the basic level of biological inheritance, the gene.

An increasing number of diseases are now understood to be related to the transmission of abnormal genetic material. These genetic diseases are assuming greater significance in clinical medicine as other categories of diseases such as nutritional and infectious diseases are brought under control. A group of the genetically produced diseases are expressed as disorders in metabolism and have thus been termed, "Inborn Errors of Metabolism." In this paper the conceptual basis of the inborn errors of metabolism will be discussed and this discussion illustrated with a specific disease, phenylketonuria.

It is a common observation that there is, within certain limits, rather wide individual variation of appearance and constitution within the human race.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. David A. Ball, M.D., is now serving internship at St. Luke's Hospital, Kansas City, Missouri.

Phenylketonuria is but one of an ever growing list of diseases which is being defined in terms of some inherited defect. These diseases may seem to be unimportant from the standpoint of frequency of occurrence, however, their importance in terms of the knowledge they have provided about the nature of the body's metabolic processes and their dependence on hereditary control is of much greater importance. These inborn errors of metabolism have provided a common meeting ground for the fields of genetics, biochemistry, and clinical medicine and resulting from this meeting each of these fields has been strengthened.

Part of this individuality in appearance and constitution results from man's great genetic diversity. In the human race genetically homogenous strains do not exist. With the exception of monozygotic twins, each person has a unique genetic inheritance. Man's individuality is a result of the blending of hereditary and environmental factors each of which has its own zone of influence. Environmental factors of extreme variety influence the expression of each person's individuality. However, this individuality within the environment is held within certain limits by hereditary or genetic factors. One example, pertinent to this discussion, of the limits established by genetic control, is the relative constancy of the body's chemical composition, and the uniformity in rate and direction of metabolic processes.

Occasionally, deviations from the normal limits occur in the chemical or metabolic constancy of the

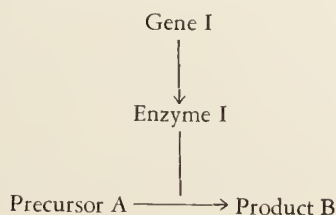
body. Some of these deviations produce so little effect that they go unnoticed. At other times these deviations produce effects of such magnitude that they may be properly termed a disease. Many of these deviations represent extremes of distribution of a trait, while others are the consequence of acquired dysfunction, such as the respiratory acidosis seen in advanced pulmonary emphysema. However, a rather significant number of these deviations represent inheritable disorders which can be directly attributed to a mutant gene. The inborn errors of metabolism are genetic produced deviations of sufficient magnitude to result in a disease state.

Inborn Errors of Metabolism

In 1908 Sir Archibald Garrod introduced the term "Inborn Errors of Metabolism." This concept was the result of his studies and observations on alkaptonuria, cystinuria, albinism, and pentosuria. Garrod proposed the concept that certain diseases of lifelong duration occurred as a result of blocks in the normal pathways of metabolism. He further postulated that these metabolic blocks were a result of the deficiency or inactivity of an enzyme. Forty years later Garrod's concept was extended to the genic level with the demonstration that each enzyme is dependent on the integrity of a specific gene.

In view of our present knowledge we may define an inborn metabolic error as a permanent, inherited condition due to a primary enzyme abnormality. Resulting from this enzyme abnormality one or more chemical compounds may follow an altered metabolic pathway and may produce either abnormally high or low concentrations of certain compounds in the body fluids. Such is the condition in phenylketonuria where the concentration of phenylalanine in the blood and cerebro-spinal fluid rises to abnormally high concentrations.

There is a common principle of etiological formulation which is relevant to all the inborn errors of metabolism. The mutant genetic information results in the enzymes related to the abnormal gene being formed with structural defects. The enzymes are proteins whose chemical activity is closely correlated to their structure. As the occurrence of each metabolic step is dependent upon a specific enzyme the alteration of any enzyme will be manifest as a failure in the metabolic step normally controlled by this enzyme. This may be illustrated as follows:



If Gene I is altered by a mutational event, Enzyme I will as a result be altered. Then Precursor A will not be converted to Product B at the normal rate. The genetic loss of capacity to create a normal enzyme results in disease if Precursor A has toxic effects or if Product B is required in some important biochemical reaction.

Phenylketonuria is an example of a disease produced by the accumulation of a toxic compound. Failure of the enzyme phenylalanine hydroxylase to convert phenylalanine to tyrosine results in the accumulation of abnormal quantities of phenylalanine. There are several examples of the situation in which the disease is the result of the failure to produce a necessary compound. Most mammals have an enzyme which will mediate a reaction for the formation of ascorbic acid. However in the entire human race the capacity for the endogenous formation of Vitamin C has been lost through the inheritance of a mutant gene. Thus man's diet must supply his needs for Vitamin C directly, or he will develop scurvy. Another way of stating this is that all human beings are afflicted with scurvy which is held in remission for most of us by the ascorbic acid supplied in our diet. Eventually the role of each of the amino acids and vitamins known to be essential in the human diet may be analyzed in terms of a single enzyme defect.

The term "molecular diseases" has been used to describe the inborn errors of metabolism. Pauling introduced this term in 1949 in connection with his studies of the inherited condition, sickle cell anemia. All of these diseases result from molecular defects in genes and subsequently in their related enzymes. It would appear likely that with further study the etiology of many more diseases both inherited and acquired will be traced to a molecular basis.

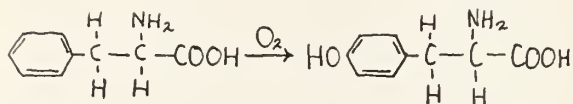
Now a word about the eugenic implications of the inborn metabolic errors. The majority of these diseases, including phenylketonuria, are transmitted as autosomal recessive traits. Recessivity reduces the dependence of the character on the gene. If the recessive gene is very rare the possibility of an individual receiving the mutant gene from each parent is very remote. Thus these offending genes are maintained in the population almost entirely by transmission through normal heterozygotes or carriers. These people carry the mutant gene, but because it is recessive it does not become manifest. Many diseases due to recessive genes have been identified in man, and undoubtedly many more will be identified. It is estimated that two people out of three are carriers of at least one serious recessive defect. As will be shown in the case of phenylketonuria, in all of these diseases consanguineous marriage greatly increases the probability of some undesirable recessive trait in the offspring. Due to the recessive nature of these diseases, the field of eugenics has little to offer toward their prevention at the present time. If methods were developed to more

accurately identify the heterozygotes for a wide variety of disease states then there would be definite eugenic application. At present the chief importance of the eugenic view-point is in advising parents of a child with an inherited disease as to the possibility of any further children being affected by the disease.

Phenylketonuria

In the remaining portion of this paper a specific inborn metabolic error, phenylketonuria will be discussed. The principles of etiological mechanisms as discussed in the preceding paragraphs are applicable to this disease.

Phenylketonuria is an inborn error of metabolism observed in mentally deficient patients and is characterized by the presence of phenylpyruvic acid in the urine. This disease was first described in 1934 by Folling, a Norwegian biochemist, who reported the presence of phenylpyruvic acid in the urine of ten mentally defective patients. In 1947 Jervis identified the basic metabolic abnormality in this disease as the inability to oxidize phenylalanine to tyrosine.



Phenylalanine is one of the amino acids which must be supplied by the diet. The minimum daily requirement of phenylalanine for an adult is about 1.10 gm. The normal metabolic pathway for the utilization of phenylalanine involves its conversion to tyrosine. The reverse of this reaction apparently does not occur to any significant degree. At least four of the body's hormones namely, epinephrine, norepinephrine, triiodothyronine and thyroxine, arise in metabolism from phenylalanine and tyrosine.

The normal level of phenylalanine in the serum ranges from 1 to 4 mgm. per 100 ml.; however, in phenylketonuria the serum levels of phenylalanine may range as high as 20 to 60 mgm. per 100 ml. Studies with isotopically labeled phenylalanine reveal that the rate of its conversion to tyrosine in children with phenylketonuria is only about one-tenth that of a normal individual. Thus with the failure of the normal metabolic pathways to deal with the phenylalanine provided in the diet, the phenylalanine level in the serum becomes quite high and results in secondary chemical abnormalities.

In 1939 Jervis demonstrated that phenylketonuria is a recessive condition transmitted by a single autosomal gene. It is present in each sex with equal frequency, since the gene is not located on the sex chromosomes. It has been clearly shown that the main features of this disease are the result of a

single gene and not the composite result of several genes. The disease is present only in those individuals who receive two of the abnormal genes, one from each parent. The typical pattern of inheritance is from two apparently normal parents who are heterozygous for the disease. Following the Mendelian laws of inheritance, on the average one in four of their children will have phenylketonuria (homozygote), one will be normal and two apparently normal (heterozygotes). When a rare hereditary disease like phenylketonuria appears in a family there is frequently no antecedent case in the family history. This is due to the recessive nature of the abnormal gene which may be transmitted through heterozygotes for numerous generations. Thus the lack of previous cases in the family history is of no value in excluding inheritance as a factor in a rare recessive disorder.

In the United States the incidence of phenylketonuria is about 1 in every 40,000 of the population. Phenylketonurics constitute about 1 per cent of the institutionalized mental defectives. The calculated frequency of heterozygotes in the population is about 1 per cent. Thus the chance of a case of phenylketonuria occurring in a nonsanguineous marriage is $1/100 \times 1/100$ or 1 in 10,000. However in first cousin marriages the chance is increased to 1 in 800. Study of the families of phenylketonurics shows consanguinity to be present to some degree between about 8 per cent of the parents which is considerably higher than the 1 per cent incidence of consanguineous marriages in the general population. In general, the more rare the metabolic disease, the higher will be the incidence of consanguineous marriages among the parents of those affected with the disease.

The variety of clinical features seen in phenylketonurics have been carefully studied in a large number of patients. In keeping with the thesis presented in the introduction to this paper all the abnormalities seen in phenylketonuria should be viewed as either near or remote results of the failure in oxidation of phenylalanine to tyrosine.

The majority of phenylketonurics are idiots. About one half of these patients never learn to talk and about one third are unable to learn to walk. A small group of phenylketonurics may be classed as borderline mental defectives, but seldom is their I.Q. above 80. The degree of mental retardation is usually stable as progressive mental deterioration is seldom part of the disease picture.

There are no neuropathological findings regularly present in this disease to explain the clinical picture; however, localized or diffuse demyelination has been found in a certain percentage of individuals with phenylketonuria.

The neurological findings in phenylketonuria include hyperactive deep tendon reflexes, muscular hypertonicity, ataxia and tremors. The behavior of

phenylketonurics is described as restless, jerky, fearful, hyperactive and irritable. They frequently exhibit a repetitive, manneristic type of behavior. About one-fourth of the phenylketonuric patients have a history of convulsive seizures. The electroencephalographic findings in these patients are abnormal, however they are not diagnostic.

Phenylketonurics are generally of light complexion and typically have blond hair and blue eyes. They are often described as attractive children in contrast to the usual appearance of the mentally defective child. It has been shown that there is a measurable defect in the amount of skin pigmentation of phenylketonurics. The mechanism of this defect is not known, but it probably involves an alteration in the metabolism of tyrosine which is the normal precursor of melanin. The coloration of phenylketonurics is generally lighter than that of the parents. The hair and skin tend to become darker when the patient is maintained on a low phenylalanine diet.

In phenylketonuria the primary or central biochemical defect is the failure of the oxidation of phenylalanine to tyrosine. The chemical findings which confirm this are the excessively high blood levels of phenylalanine, the absence of a rise in blood tyrosine after the ingestion of phenylalanine and the very restricted conversion of labeled phenylalanine to tyrosine. The inactive enzyme in these patients has been identified as phenylalanine hydroxylase which is normally present in the liver.

The excessively high level of phenylalanine in the blood and spinal fluid results in several abnormal conditions. First the excessive phenylalanine is partially converted by its transaminase to phenylpyruvic acid which in turn is converted to phenyllactic acid, phenylacetic acid, and phenylacetylglutamine all of which are excreted in the urine. Second the excess of phenylalanine inhibits normal pathways of tyrosine metabolism with a resulting partial defect in skin pigmentation. Third the high levels of phenylalanine or one of its products causes some, as yet unexplained, damage to the central nervous system resulting in mental retardation, seizures, and the other neurological abnormalities.

Individuals who are heterozygous for phenylketonuria have no clinical manifestations of the disease. However it is possible to identify the heterozygotes by means of a phenylalanine tolerance test. Parents of phenylketonurics when given a specific dose of phenylalanine show a higher and more sustained concentration of phenylalanine than do controls. These results suggest that the heterozygous carriers with one defective gene have less than the normal complement of active phenylalanine hydroxylase.

The diagnosis of phenylketonuria should be ruled out in all cases of mental retardation. The diagnosis is

made by demonstrating the presence of phenylpyruvic acid in the urine. When a few drops of 10 per cent ferric chloride solution are added to an acidified urine specimen an intense green color develops if phenylpyruvic acid is present. A urine moist diaper may be tested easily by the same method if a urine specimen is not available. In addition a paper reagent strip (Phenistix) is available which is specific for the detection of phenylketonuria. Thus the laboratory diagnosis of phenylketonuria is quite simple. It is important that the diagnosis be made while the patient is very young due to the prospects of considerable gain from the institution of treatment early in life.

Several studies have been made on patients with phenylketonuria with regards to the effect of diet on the disease process. In these studies phenylketonurics of all ages have been maintained for several months on diets which have a very low content of phenylalanine. Beneficial effects on intelligence were limited to patients under three years of age. Improvements in general behavior, EEG's, and skin condition were observed in some older patients. However, the problems involved in maintaining a low phenylalanine diet which is nutritionally adequate are considerable. The basis of the special diet used in the management of phenylketonuria is a synthetic mixture of essential amino acids which is made by hydrolyzing the milk protein, casein and removing the phenylalanine. It is not possible to devise a home diet which is sufficiently free of phenylalanine and yet adequate in the protein required for growth and maintenance.

The observations made during the course of these dietary studies indicates that the metabolic disturbances associated with the high concentrations of phenylalanine in the plasma interfere with normal cerebral development rather than with the function of a normally developed brain. Thus any effort to alleviate the effects of this disease must be instituted early in life to prevent irreversible damage to the central nervous system.

At the present time only a small number of children with phenylketonuria have been treated with a low phenylalanine diet since early infancy, however it is encouraging that all of the children in these studies appear to be developing normally. It has not been determined how long it will be necessary for phenylketonurics to be maintained on a special diet, however some observations suggest that the diet may not be necessary beyond two or three years of age. It is possible that some time in the future the missing enzyme may be isolated in a suitable preparation to administer to these patients so that a special diet would not be necessary.

Editor's Note: References may be obtained by writing The JOURNAL, 315 West Fourth Street, Topeka, Kansas.

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297 or 298

Monographs Available in This Library

Genetics & Heredity

- Lindsey, A. W. Principles of organic evolution. Mosby. 1952.
Peters, James A. Classic papers in genetics. Prentice-Hall, 1959.
Sinnott, E. W. Principles of genetics. McGraw-Hill. 1939.
Smith, H. W. From fish to philosopher. Ciba Foundation. 1959.
Walter, H. E. Genetics, an introduction to the study of heredity. Macmillan. 1922.
Ciba Foundation Symposium on Human biochemical genetics in relation to the problem of gene action. Little, Brown. 1959.
Dickinson, R. L. Human sterilization; techniques of permanent conception control. 1950.
Murphy, S. P. Heredity in uterine cancer. Harvard University Press. 1952.
Newman, H. H. Twins, a study of heredity and environment. Univ. of Chicago Press. 1937.
Olden, Marian. Survival of the unfittest. Birthright, Inc.
Osborne, R. H. Genetic basis of morphological variation. Harvard University Press. 1959.
Popenoe, P. W. Twenty-eight years of sterilization in California. Pasadena. 1938.
Reed, C. Counseling in medical genetics. Saunders. 1955.
Shurr, A. F. Heredity. McGraw-Hill. 1926.
Woodside, M. Sterilization in North Carolina. North Carolina Press. 1950.

Hygiene

- Diehl, H. S. Healthful living. McGraw-Hill. 1955.
Elliott, Grace. Women after forty. Holt and Co. 1936.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

- Kellogg Foundation. An experience in health education. Battle Creek. 1950.
Miner, R. W. The regulation of hunger and appetite. New York Academy of Science, 1955.
Otto, J. H. Modern health. Holt Co. 1955.
Rosenberg, M. M. It is your life; keep healthy, stay young, live long. Scholastic book press. 1940.
Turner, C. E. Effective living. Mosby. 1945.
Turner, C. E. Personal & community health. Mosby. 1952.
U. S. Office of Education. Basic body measurements of school age children. Supp. of Doc. 1953.
Joint Committee on Health Problems in Education. School health services. National Education Association. 1953.
Winslow, E. E. Man and epidemics. Princeton University Press. 1952.
Bender, A. E. Dictionary of nutrition and food technology. Academic press. 1960.
Gavanna, E. Gourmet cookery for a low-fat diet. Prentice-Hall. 1956.
Bellows, A. J. The philosophy of eating. Dutton. 1867.
Blum, S. Applied dietetics for adults and children in health and disease. Davis & Co. 1936.
Borden Centennial Symposium on nutrition, New York, 1958. The nutritional ages of man, past, present and future.
Bridges, M. A. Food and beverage analyses. Philadelphia. 1942.
Davis, A. Vitality through planned nutrition. Macmillan. 1949.
Dobbin, E. The low fat, low cholesterol diet. Doubleday. 1951.
Ellis, Rhoda. A Dictionary of dietetics. Philosophical library. 1956.
Fishbein, Morris. Your diet and your health. McGraw-Hill. 1937.
Florida. Citrus fruits in health and disease. Lakeland. 1956.
Gotthoffer, N. R. Gelatin in nutrition and medicine. 1945.
Hawley, E. E. The art and science of nutrition. Mosby. 1941.
Johns Hopkins Hospital. Manual of applied nutrition. Johns Hopkins Press. 1960.
Kansas University School of Medicine. Dept. of Dietetics and Nutrition. Therapeutic meal plans. Univ. of Ks. Press. 1960.

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The President's Message

DEAR DOCTOR:

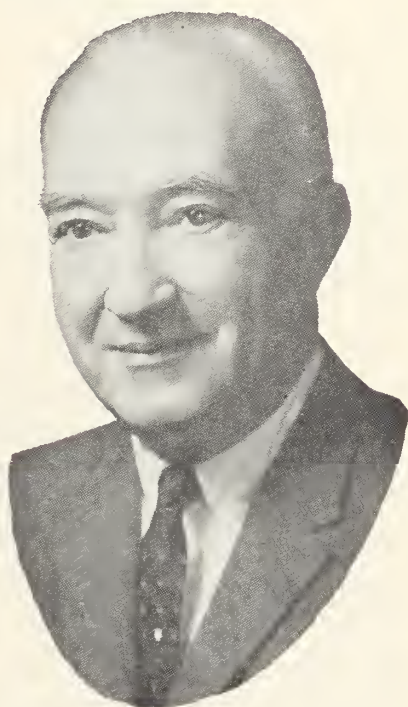
This being my first President's Page, I feel I am not in an enviable position, though greatly honored to have been asked to fill the vacancy of our distinguished president, now deceased; a great man of medicine, a quiet, sincere, religious gentleman with the great respect of all.

Following is a short report regarding our trip to St. Louis attending the one-day conference of the United States Chamber of Commerce. It was attended only by the higher echelon of business with invitations to presidents and executive secretaries of medical societies. The entire program was pointed as to what could be done to forestall the socialistic trends of the Federal government in business, medicine, and allied interests. They suggested training programs in economics and participation in politics on the local level.

From the information obtained, I feel that medicine could only participate from the local level by contact education, very similar to the suggestions of the American Medical Association.

I hope the medical profession will take more interest in public relations and to further educate the public in our side of the story regarding Federal medical legislation.

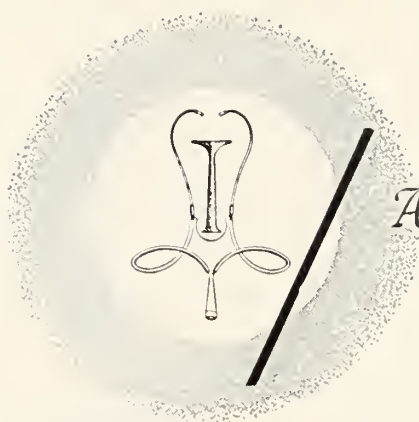
In attending and acting as moderator at the postgraduate course in School Health, October 19, 1961, one could not help but be impressed with the tremendous job the Kansas University Medical School is doing in the field of postgraduate study. It has been growing each year until it has reached the stature of being one of the best in the United States and certainly deserves the attention and participation of the doctors throughout the state.



Yours very truly,

A handwritten signature in dark ink, reading "L. A. Wrightman". The signature is written in a cursive style with large, flowing letters.

President



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

There are still approximately twenty-five seats which have not been reserved by the \$100 deposit necessary for the Charter Flight to Europe in June, 1962. It is necessary that the airship be contracted for within the next month. Anyone interested please contact Dr. John Shellito or Dr. John Warren, 3244 East Douglas, Wichita, Kansas.

MEDICO is increasing the number of medical personnel serving in its overseas hospital and clinic installations. There are fifteen MEDICO-supported units in twelve countries in various parts of the world. New requests are being received for additional medical and surgical teams in South America and in the newly emerging countries in Africa.

At present, surgeons, internists, general practitioners, and anaesthesia specialists are needed in Afghanistan, Cambodia, Vietnam, Malaya, Laos, and Haiti. Salaries, length of service and specific information concerning each project will be sent on request. Address inquiries to MEDICO Incorporated, 420 Lexington Avenue, New York 17, New York.

The Department of Medicine of the Menorah Medical Center will hold its annual A. Morris Ginsberg Memorial Seminar on November 28 and 29, 1961. The guest this year will be Joseph B. Kirsner, Ph.D., M.D., Professor of Medicine, University of Chicago.

All physicians are invited to attend. The general subject will concern Diagnosis and Management of Gastrointestinal disorders.

The Third National Conference on the Medical Aspects of Sports sponsored by the American Medi-

cal Association, under the auspices of the AMA Committee on the Medical Aspects of Sports, will be held in Denver, Colorado, at the Cosmopolitan Hotel on November 26, 1961. The Conference will be held in conjunction with the annual Clinical Meeting of the American Medical Association, November 26-30, 1961.

Those interested in receiving announcements concerning the Conference should address the Secretary, Committee on the Medical Aspects of Sports, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

The Association of the American Medical Colleges today announced the extension of the Foreign Fellowships for Medical Students program which is sponsored by Smith Kline & French Laboratories, Philadelphia pharmaceutical firm.

Originally set up for a 3-year term and due to expire in 1962, the program is to be extended through 1963.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Keith W. Gallehugh,
M.D.
1400 Polk
Great Bend, Kansas

Gordon E. Maxwell,
M.D.
135 E. Claflin
Salina, Kansas

George E. Miller, Jr., M.D.
135 E. Claflin
Salina, Kansas

William A. Smiley, Jr., M.D.
1011 Center Avenue
Goodland, Kansas

John G. Swails, M.D.
Wathena, Kansas



Blue Shield

(Editor's Note: In the October issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY, we carried a discussion of the second annual enrollment of federal workers under the Federal Employee Health Benefits Legislation. There is sufficient interest in the Blue Shield benefits under this program, that it seems appropriate to discuss the Blue Cross-Blue Shield Supplemental Benefits this month inasmuch as only the basic benefits were discussed in October.)

The Deductible

The "deductible" is the amount of expense a subscriber must incur for covered services or supplies before the Plan will pay Supplemental Benefits. The Deductible is \$100 under the High Option program and \$150 under the Low Option program. Expenses paid for by Basic Benefits are not counted toward the Deductible; nor will Supplemental Benefits reimburse the subscriber for the Deductible.

A separate Deductible applies for each subscriber during a Benefit Period and all members of the Federal Employees Plan administered by Blue Cross-Blue Shield are eligible for Supplemental Benefits. If two or more subscribers under the same family enrollment are injured in the same accident, *only one* Deductible need be satisfied by those injured, however.

The Benefit Period

A Benefit Period begins on the first day that a charge for covered services or supplies is incurred after the subscriber's coverage under this Plan first becomes effective; or on the first day that such a charge is incurred after the termination of a previous Benefit Period. In either case, the Benefit Period begins with the first incurred charge for covered serv-

ices or supplies even though such charge is covered by Basic Benefits. An expense is "incurred" on the date the service or supply for which a charge is made is received. A Benefit Period ends twelve months after it begins.

What Is a Covered Service?

- Physicians' services, including surgery, home, office and hospital visits and consultations.
- Hospital services; however, any part of the hospital's charge for room and board in excess of \$25 a day (High Option) or \$15 a day (Low Option) will not be allowed as a charge for a covered service.
- Anesthetics and administration.
- Oxygen and equipment for administration.
- Blood transfusions, including the cost of blood, blood plasma and blood plasma expanders.
- Radiation therapy.
- Diagnostic examinations, including x-ray, laboratory, basal metabolism, electrocardiogram, electroencephalograms and radioisotope.
- Local professional ambulance service to or from a hospital for inpatients, or for outpatients receiving accident care.
- Physical therapy rendered by a qualified professional physical therapist.
- Orthopedic braces (except corrective shoes), crutches, and prosthetic appliances such as artificial limbs and eyes, including their replacement, repair or adjustment.
- Rental of wheelchair and other durable equipment for medical treatment.
- Drugs and medicines requiring a written prescription.
- Services of special nurses in or out of the hospital; or a licensed practical nurse in the hospital.

However, under unusual circumstances, and upon written certification by the attending physician that the services of a professional registered nurse were necessary but unobtainable, the Carrier may determine that the services of a licensed practical nurse are covered services.

Amount of Payment

The Plan will pay Supplemental Benefits of 80 per cent under the High Option or 75 per cent under the Low Option of charges for covered services and supplies which are in excess of the \$100 (High Option) or \$150 (Low Option) Deductible. However, in the case of nervous or mental disorders, under both options the Plan will pay 50 per cent of charges in excess of the applicable Deductible for covered services and supplies (including drugs and medicines) received in the outpatient department of a hospital or outside of a hospital.

Submitting a Claim

As it was pointed out last month, Service Statements for basic benefits are submitted by the physician on the regular Blue Shield form.

To submit for Supplemental Benefits, the subscriber must file a *special* claim after the Deductible has been satisfied. The subscriber should have forms in a kit which was distributed or the forms can be obtained from his personnel office, or by writing to the Blue Cross-Blue Shield office, in Topeka. The number, on this form, is FSP-1361. This completed form, plus the itemized bills for the medical expense should be sent to Kansas Blue Shield, Topeka. The only people who do not submit claims to Topeka, are those enrolled in Johnson and Wyandotte Counties, and these will be submitted to Blue Cross-Blue Shield, Kansas City, Missouri.

Supplemental Benefits are paid to the subscriber except in very unusual circumstances where an assignment has been obtained from the Federal Employee. More information on these special assignments is available from the Physician Relations Department of Kansas Blue Shield, Topeka.

Special Benefit Provisions

To the extent that they are not covered by Basic Benefits, a certain amount (depending on the high or low option program in which the member is enrolled) will be paid toward the following services in a physician's office, or elsewhere:

- X-ray examinations.
- Laboratory examinations.
- Basal metabolism examinations.
- Electrocardiograms.
- Electroencephalograms.
- Radioisotope examinations.

These benefits are paid regardless of whether the subscriber has satisfied the Deductible. The \$20 (High Option) or \$25 (Low Option) payable by the subscriber may be used to help satisfy the Deductible the member may have. If the Deductible has already been satisfied at the time the subscriber receives a service for which the special benefit is payable, Supplemental Benefits will be paid for the charges including high or low option.

There Are Exclusions!

It should be pointed out here that basic, maternity or supplemental benefits will *not* be provided for charges incurred for any of the following:

Services and supplies—

- Furnished without charge, or paid for by a government.

- For which the subscriber has no legal obligation to pay, or for which no charge would be made if the subscriber had no health insurance coverage.

- Required as a result of war, or act of war, occurring after the effective date of the subscriber's coverage.

- Required as a result of occupational disease or injury for which any benefit is payable under workmen's compensation or similar law.

- For personal comfort, such as radio and telephone, beauty or barber services.

- For cosmetic purposes unless related to an accidental injury occurring while the subscriber is covered under this Plan; however, Basic Hospital Benefits are provided even if the hospital admission is for cosmetic purposes not related to accidental injury.

- For routine or periodic physical examinations, screening examinations, immunization shots, the removal of corns or calluses or the trimming of toenails.

- Not medically necessary for the diagnosis or treatment of an illness, injury or bodily malfunction.

Convalescent, custodial or rest cure care is not covered; travel, even though prescribed by a physician is not covered; eyeglasses or hearing aids or examinations for them; physicians' visits for the routine care or examination of a newborn child.

SUPPLEMENTAL BENEFITS will not be provided for:

A. Dental care, dental surgery, or dental appliances unless required by accidental bodily injury occurring while the subscriber is covered under this Plan; except covered oral surgery is not excluded.

B. Services or supplies required for obstetrical delivery other than caesarean delivery or the complications of pregnancy.

C. Services or supplies to the extent benefits are available to the subscriber under any other health benefits plan held by reason of law or as a result of

(Continued on page 500)



Personalities—IN KANSAS MEDICINE

Dr. Arthur C. Cherry, Jr., of the Topeka Medical Center has been elected a Fellow of the American Academy of Pediatrics.

Dr. Hugh Bayles has been elected chief of staff of the St. Margaret's Mercy Hospital in Fredonia.

Dr. Edmer Beebe, Olathe, and **Dr. Richard E. Speirs**, Dodge City, have been appointed by Gov. John Anderson to the state board of healing arts.

Dr. Robert Stoffer and **Dr. Emmett McCusker** of the Hertzler Clinic, Halstead, attended the sessions of the American Association of Medical Clinics in New York.

Dr. Frances Allen, Newton, was the delegate from Bethel Clinic to the meeting of the American Association of Medical Clinics which was held in New York the latter part of September.

Great Bend pediatrician, **Dr. Marion Russell**, has a role in two University of Kansas Extension Clinics being conducted in Western Kansas this fall.

Dr. David W. Robinson, a Johnson County surgeon is on his way to Vellore, India to give of his time and knowledge to the teaching of medical students in his field of plastic surgery.

Dr. Norman E. Macy of Wichita, formerly of Longford, has been awarded a four-year fellowship to study general surgery at the Mayo Brothers Clinic at Rochester, Minn.

Dr. L. E. Haughey of the Gelvin-Haughey Clinic, Concordia, attended a meeting of the American Association of Medical Clinics in New York.

Drs. Robert W. Webber and **James C. Dowell** have started practices of internal medicine in Salina. Their offices are at 416 S. Santa Fe.

Dr. James J. Jambor, Dodge City physician, spoke and showed slides on dermatology at the Lions Club. Dr. Jambor spoke on common ailments and ways of treating them.

Kansans were among the 1,100 surgeons inducted as fellows of the American College of Surgeons. They were **Dr. Clarence H. Steele**, Kansas City; **Dr. Charles A. Isaac**, Newton; and **Dr. Kenneth D. Powers**, Wichita.

Dr. H. O. Marsh, Wichita, has been selected as chairman of the Medical Advisory Committee of the Sedgwick County Chapter of the National Foundation.

Dr. Gaylord P. Neighbor of Kansas City was elected president of the Kansas Academy of General Practitioners at the close of the 11th annual convention in Wichita.

Other officers are: **Dr. Norman H. Overholzer**, El Dorado, president-elect; **Dr. Floyd Beelman**, Topeka, vice-president; and **Dr. Galen Fields**, Scott City, secretary.

Drs. Thomas P. Butcher and **J. L. Morgan**, Emporia, took part in the program for the annual meeting of the Kansas Tuberculosis and Health

(Continued on page 500)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

HEALTH COST TEST

All plans to attack the health insurance problem are interesting, including the one being developed by the California Medical Association.

The voluntary program there, which is expected to be in full operation after two years, would cost \$24 per month and would cover 90 per cent of the health-care costs of the average family.

Realizing that 72 per cent of all Californians are now covered by private health insurance plans, the doctors are working on the "segmented" approach. It would supplement existing programs to the point where a family of four would have 90 per cent coverage for hospitalization, medical services, health check-ups, laboratory fees and some psychiatric care. It is expected the plan would continue to cover people after they reach 65.

If this program can be applied nationally, the sponsors expect it will end public pressure for government-financed health care. The test will be how many families will want to budget \$24 per month for this protection.—*Wichita Evening Eagle & Beacon*, September 5, 1961.

UNCLE SAM, M.D.

Uncle Sam is going into the health business in a big way if President Kennedy can sell Congress on his six-point proposal for Federal intervention in the fields of medical services and education, hospitalization, medical research, vocational rehabilitation and "youth fitness."

The most controversial item is a revival (with some revisions) of the medical care for the aged program that was rejected by Congress last year. Under the new specifications, the estimated cost of \$1.5 billion is to be met by a hike in Social Security taxes.

The five other programs to be paid for with increased outlays of tax money are loosely figured to

cost something over \$56 million for the first year and \$170 million the second year and include construction of nursing homes and medical and dental schools, Federal medical and dental scholarships.

The President insisted in his message that "This is not a program of socialized medicine." It "guaranteed," he said, freedom of choice of doctor and hospital and is "in accordance with the traditional American system of placing responsibility on the employee and the employer rather than on the general taxpayer, to help finance retirement and health costs."

We had somehow felt the "traditional American system" involved looking out for oneself and one's kith and kin.

Nor is there any "freedom of choice" involved in payment of the increased Social Security taxes—even among those who are providing their own health insurance.

Nor can we conceive of the government barging into the healing business in any large way without regimenting the medical profession and entailing the customary extravagance, inefficiency and bureaucratic arrogance.

Such a proposal would be of little surprise in a socialistic government, but serious considerations of them in our democratic government are almost unbelievable.—*Pratt Daily Tribune*, February 14, 1961.

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Hearing Disorders

Loss of hearing, a condition that afflicts nearly 6,000,000 Americans, is the leading physical disability in this country, according to a recent issue of *Patterns of Disease*, a Parke, Davis & Company publication for the medical profession.

There are, the report estimates, 24,000,000 disabilities among persons in the United States, excluding those in institutions. Of these disabilities, 25 per cent are some degree of deafness, although only a relatively small number of persons—109,000—can be considered totally deaf. And deafness is more common among men than women, the rate per 1,000 persons being one third greater for males.

Contrary to common belief, being hard of hearing is not primarily an old folks' complaint. In fact, almost three out of every five persons with hearing disorders are under 65. But incidence of deafness does increase with age, and after 65, its rise is sharp. In the 45-64 age group, for instance, the number of persons with hearing impairments is 52 per 1,000 people, but for the 65-74 the rate is 129 per 1,000 persons. After 75, the rate soars to 256 per 1,000 population.

Numerous Causes

The causes of hearing disorders are as varied as they are numerous. Certain causes, however, are attracting increased attention either because of new knowledge about them or because they are becoming increasing problems.

For example, it has been found that complications of pregnancy and birth account for a high percentage of hearing disorders among newborn babies and young children. Findings of a study conducted among 328 children with severe hearing loss revealed that in one third of the group, damage could be attributed to the prenatal or natal periods. Complications of birth and labor headed the list of specific causes, accounting for more than 15 per cent of all cases. Maternal rubella was found to be the cause of 11 per cent of cases and Rh incompatibility was believed responsible for 7 per cent.

Noise is another cause of deafness that is attracting growing concern and interest. For, with the expansion of industry and the development of high-speed machines, noise-induced hearing loss is becoming an increasingly serious problem.

The incidence of hearing loss due to noise depends on such factors as the level of sound, frequency of noise in cycles per second, the duration of the noise and the susceptibility of the individual. For example, brief exposure to a loud noise, like that of a jet engine, may have no significant effect. But prolonged exposure to a lesser volume of noise,

such as that of subways, may cause damage. And if noise is both prolonged and intense it will produce "permanent damage to the inner ear, varying from minor changes in the endings of hair cells to complete destruction of the organ of Corti."

However, noise may cause hearing loss without causing permanent damage. In many cases, the loss is only temporary. If a person is exposed to noise on the job, his hearing may be affected by the end of the work-day, but by next morning, his ears will probably have recovered and his hearing will be back to normal.

Noise has become an important factor in deafness, particularly among men. Almost one out of every five hearing impairments in men is caused by injury, which has been attributed to the higher accident rate for men and their exposure to noise in industry, as compared to only one in 25 among women.

Surgical Techniques

If hearing impairment is becoming an increasingly serious problem, it is also a field in which rapid advances are being made. Hearing aids are proving valuable in overcoming certain types of deafness, and new surgical techniques are also achieving a wide measure of success.

Particularly encouraging have been the results of surgery in treating otosclerosis, a condition responsible for about one in every five cases of impaired hearing. Another new operation, tympanoplasty, has proved "useful in restoring tympanic function when the conduction mechanisms involving the middle ear have been damaged by chronic middle-ear or mastoid diseases."

Symptoms Vary

The symptoms and signs of impaired hearing vary greatly, depending on the type of deafness the individual has. To a person with one type of deafness, the sound of his own voice may seem loud; to someone with another type, it may seem soft. Vertigo may be present in some types of deafness, in others it is rare.

People with tinnitus—ringing or buzzing in the ears—may not even be aware that they have impaired hearing. Results of a study conducted among persons complaining of tinnitus revealed that more than 92 per cent were found to have hearing losses when tested audiometrically. Curiously enough, however, only 53 per cent had been aware that their hearing was impaired.

Failure to recognize deafness is, of course, fairly common, particularly where children are concerned.

With the aid of special testing devices, the hearing of babies and young children can be accurately measured. Even infants only three weeks old can be tested for response to sound stimuli.

Hearing impairments should be detected as early as possible, for differential diagnosis in infants and young children is necessary to rule out such factors as mental retardation, aphasia, emotional disturbance, and psychic deafness.

From the Stacks

(Continued from page 492)

Minnesota University. The biology of human starvation. Univ. of Minn. Press. 1950.

Kountz, W. B. Diet and its relationship to health. Gerontological research foundation. 1957.

McLester, J. S. Nutrition and diet in health and disease. Saunders Co. 1949.

Mayo Clinic. Mayo clinic diet manual. Saunders. 1961.

Mitchell, H. H. Nutrition and climatic stress. Thomas. 1951.

Nizel, A. E. Nutrition in clinical dentistry. Saunders. 1960.

National Research Council. Survey of food and nutrition research in the U. S. 1948-1953.

Blue Shield

(Continued from page 496)

employment when the employer contributes toward the cost of the plan or makes payroll deductions for collections of premium.

D. Services of a special nurse who is an immediate relative, or member of the household of the subscriber. However, this exclusion does *not* apply to the services of such special nurse for one 8-hour shift out of each 24-hour continuous nursing period if satisfactory proof is furnished that she would otherwise be gainfully employed as a nurse.

Maximum Supplemental Benefits

The maximum Supplemental Benefits payable are \$10,000 for one benefit period or \$30,000 for three or more benefit periods under the High Option program; or \$5,000 for one benefit period and \$10,000 for three or more benefit periods under the Low Option program.

When these maximum amounts have been paid under either program, Supplemental Benefits can be reinstated upon submission of evidence, acceptable

to the Carrier, of the subscriber's insurability. The Deductible and the above maximums apply *only* to Supplemental Benefits.

Personalities

(Continued from page 497)

Association and its medical branch, the Kansas Thoracic Society, in Topeka.

The 1961-62 officers of the Kansas Thoracic Society are: President, **Paul R. Carpenter, M.D.**, Kansas City; Secretary-Treasurer, **M. Martin Halley, M.D.**, Topeka. Representatives-at-large to Executive Committee: **I. S. Kwak, M.D.**, Norton, and **James C. Dowell, M.D.**, Salina. Representative Councilor to A.T.S. is **Martin J. FitzPatrick, M.D.**, Kansas City. They were elected at the annual meeting of the Kansas Thoracic Society in Topeka on September 28, 1961.

James Dowell, M.D., and **C. F. Haughey, M.D.**, Salina, appeared on the program of the Annual Meeting of the Kansas Tuberculosis and Health Association and the Kansas Thoracic Society in Topeka September 28 and 29.

Power Mower Kills Child

The power lawn mower recently took a life. The victim was a two-year-old Kansas girl, who ran in front of a riding-type lawn mower being operated by her father. He had made a turn and did not see his little girl in time. He was admitted to a hospital for treatment of a severed tendon and a cut knee, resulting from his frantic effort to brush his daughter out of danger. The lawn mower had no guard on the front.

The State Board of Health believes the power lawn mower accident rate has assumed epidemic proportions. If as many persons became ill with smallpox as are injured by power mowers every person in the nation would rush to have himself vaccinated against smallpox. And, of course, that's the only way to stop an epidemic—by doing something to prevent its further occurrence. Apparently not enough people are concerned about the power mower accident epidemic. This attitude is similar to the apathy toward car accidents.

Almost every issue of our newspapers carries an account of one or more injuries involving power mowers. Some injuries are relatively minor, some are serious but can be successfully treated, some permanently disable the victims, some are fatal. Most of them could be prevented.



HERBERT CILLIS MARTIN, M.D.

Dr. Herbert Martin, 45, a Coffeyville physician since 1946, died in Coffeyville Memorial Hospital on September 24, 1961. Death was attributed to cancer.

Dr. Martin was born in Coffeyville, December 11, 1915. He graduated from the University of Kansas Medical School in 1942. His internship was served at Grace Hospital in Detroit, Michigan. Upon completion of his internship, Dr. Martin entered the armed services, serving with the Army Medical Corps overseas.

Dr. Martin was a member of the First Methodist Church. He held memberships in the American Medical Association, the American Association of General Practitioners, the Masonic Lodge, and the Coffeyville Memorial Hospital medical staff.

Surviving in addition to his wife and mother are four children, Anita Sue, Scott, Stewart, and David, all of the home; and a brother, Dr. Albert E. Martin.

ERNEST M. SEYDELL, M.D.

Dr. E. M. Seydell, 79, Otolaryngologist and practitioner in Wichita since 1909, died September 23, 1961, in Wesley Hospital.

Dr. Seydell was born in Chicago, March 29, 1882 and was graduated from Northwestern University Medical School in 1909. He went to Wichita after graduation and served his internship in the pathology department at St. Francis Hospital.

He was a specialist certified by the American Board of Otolaryngology in 1925. He later became a member of the Board of Otolaryngology. He was associate editor of the *Archives of Otolaryngology* for many years; member of the American Academy of Ophthalmology and Otolaryngology and he held memberships to many other organizations.

He is survived by his wife, two daughters, one son, four grandchildren and one great-grandchild.

The Kansas Medical Society—1961-1962

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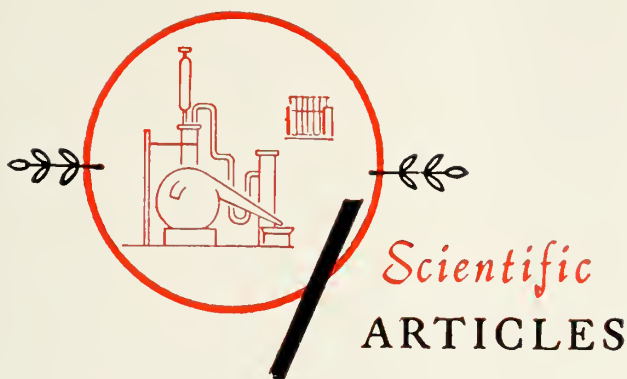
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Hypertension and Kidney

Hypertension Secondary to Atheromatous Stenosis of Renal Artery

J. M. CATLETT, M.D.; W. A. SLENTZ, M.D.;

C. L. HENRY, M.D., and S. F. WHITE, M.D., *Kansas City, Mo.**

INCREASING INTEREST the past few years has been shown in etiological factors associated with cases of hypertension, especially those of recent onset. This increasing interest can perhaps be attributed in part to the availability of better methods for studying and treating such cases. The following case is a report of the successful surgical management of hypertension caused by an atheromatous plaque producing stenosis of the left renal artery. This patient presented some unusual findings which will be expanded into a brief discussion of the diagnostic features of hypertension caused by renal artery lesions.

Case Report

(A) HISTORY: This 62 year old white accountant had been in good health with no history of cardiovascular or renal disease. In April 1960 his physician recorded his blood pressure as 120/80. The patient related that he had always had "low blood pressure." Two months before admission to the hospital he developed mild intermittent headaches. These became gradually more severe and were described as sharp, constant pains which seemed to start behind both eyes and go around to the back of the head. The headaches were more likely to come on suddenly

when the patient first awakened but had no consistent pattern as to time of day or relationship to activity. There was occasionally associated mild blurring of vision and vertigo.

(B) PHYSICAL EXAMINATION: Increasing severe

A case of hypertension secondary to an atheroma creating a stenosis of the left renal artery is presented. Postoperative studies demonstrate the return of normal renal function and the absence of hypertension following left renal endarterectomy. Hypokalemia and a preoperative reduction of the blood pressure to normal levels were two unusual features in this case.

headaches and nausea prompted hospitalization. On admission September 22, 1960, the blood pressure was 200/120 and ophthalmoscopic examination showed increased tortuosity of the retinal vessels with arterio-venous nicking and several flame hemorrhages. The lungs were clear and no abnormal cardiac findings were noted. Neurologic examination was negative.

* From the departments of medicine and surgery, St. Luke's Hospital, Kansas City, Missouri.

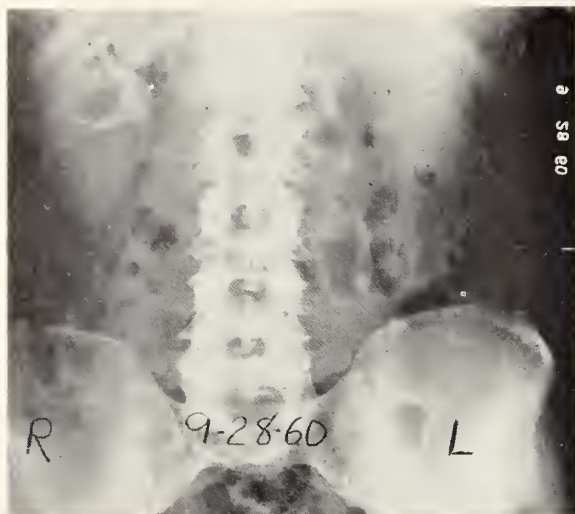


Figure 1. Intravenous pyelogram before surgery showing lack of function of the left kidney.

(C) LABORATORY STUDIES: The hemoglobin was 18 Gms. per cent and there were 5,000,000 red cells. The white blood count was 9,500 with a normal differential count. Serial urinalyses showed the specific gravity to vary between 1.016 and 1.020. The reaction was alkaline on one occasion. Microscopic examination revealed one to three red cells per high power field with occasional hyaline cast. The fasting blood sugar was 77 mgm. per cent, the cholesterol was 220 mgm. per cent, and the SGOT was 8 units. No L. E. cells were found in the blood. The blood urea nitrogen was 23.5 mgs. per cent on admission, rose to 38 mgs. on September 26, 1960, and fell to 16.5 mgs. on October 11, 1960. The serum CO_2 was 31.3 meq./liter on September 27, 1960. The serum sodium was 132 meq./liter on September 27, 1960, and 139 meq./liter on October 11, 1960.

The most interesting laboratory finding was the hypokalemia and hyponatremia. Initially, the serum

potassium was 2.8 meq./liter and the serum chloride was 82 meq./liter. On September 27, 1960 the serum potassium was again 2.8 meq./liter and the serum chloride was 84 meq./liter. On October 1, 1960 the values had increased to 4.9 meq./liter and 97 meq./liter respectively and they remained in normal limits.

An electrocardiogram revealed slight depression of the S-T segments and flattening of the T waves. A roentgenogram of the chest was normal. Intravenous pyelograms (Figure 1) showed normal function of the right kidney but persistent lack of filling of the collecting system of the left kidney. Retrograde pyelograms (Figure 2) revealed normal architecture of both kidneys. Differential renal excretion studies were unsatisfactory because of lack of urine flow from the left kidney. Indigo Carmine injected intravenously appeared in 10 minutes from the right kidney but none appeared from the left kidney.

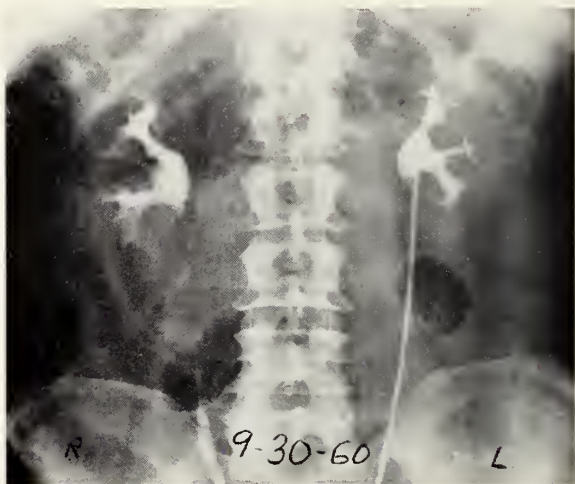


Figure 2. Retrograde pyelogram revealing normal architecture.

A trans-lumbar aortogram was obtained using 25 cc. of 50 per cent Hypaque. There was distinct narrowing (Figure 3) of the left renal artery 2 cm. from its origin with slight post-stenotic dilatation or so-called jet aneurysm distal to the occlusive lesion. The vascular tributaries in the left kidney appeared small and "spidery." The vascularity of the right kidney was normal.

The blood pressure was recorded four times daily and the averages of these determinations are listed in Table 1. Note that the blood pressure gradually fell to normal range before surgery.

The patient was given a preparation containing 50 mgs. of hydrochlorothiazide and 0.125 mg. of reserpine (Hydropres 50) one tablet b.i.d. Perphenazine (Trilafon) 5 mg. was given intramuscularly for nausea and butabarbital sodium (Butisol) 1/2 grain was given orally q.i.d. Because of the hypokalemia, potassium chloride enemas were started on Septem-

TABLE 1

| | | | |
|---------|---------|-------|---------|
| 9-22-60 | 200/120 | 10-5 | 126/60 |
| 9-23 | 185/105 | 10-6 | 138/78 |
| 9-24 | 150/92 | 10-7 | 150/80 |
| 9-25 | 140/88 | 10-8 | Surgery |
| 9-26 | 130/85 | 10-9 | 98/58 |
| 9-27 | 125/74 | 10-10 | 120/70 |
| 9-28 | 130/85 | 10-11 | 110/68 |
| 9-29 | 130/70 | 10-12 | 105/70 |
| 9-30 | 125/78 | 10-13 | 106/70 |
| 10-1 | 120/75 | 10-14 | 120/52 |
| 10-2 | 120/70 | 10-15 | 118/62 |
| 10-3 | 125/80 | 10-16 | 107/64 |
| 10-4 | 130/85 | 10-17 | 100/70 |

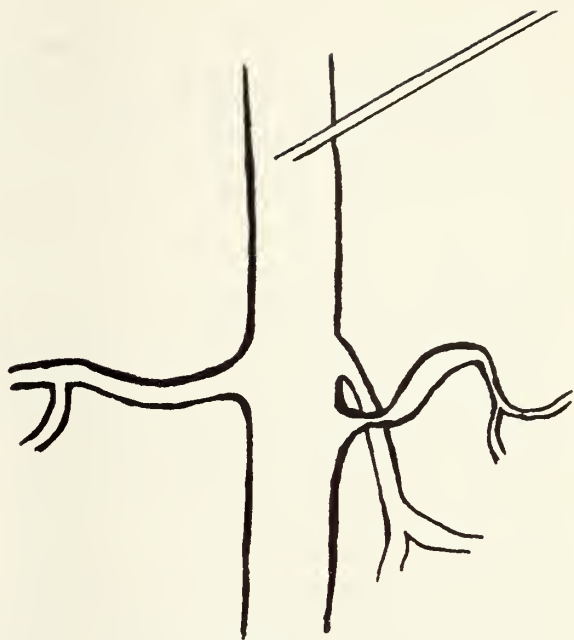
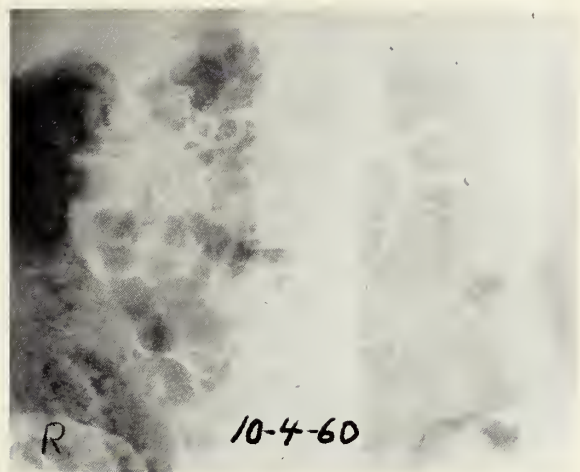


Figure 3. Renal angiogram showing the stenosis and slight post-stenotic dilatation of the left renal artery.

ber 28, 1960, with the dose 6 Gms. daily until October 1, 1960, when the dose was reduced to 3 Gms. daily. The serum potassium level promptly returned to normal. The hydrochlorothiazide-reserpine mixture was discontinued on September 27, 1960. The patient gradually improved clinically with the headaches and nausea subsiding.

On October 8, 1960, surgical exploration of the left renal artery confirmed the presence of an occlusive atheromatous plaque along the posterolateral wall of the artery just distal to its origin from the

aorta. There was absence of pulsation beyond this point. Endarterectomy was done and restoration of pulsatile flow throughout the entire left renal artery was assured.

The postoperative course was uneventful and follow-up evaluation revealed that the headaches had disappeared and the retinal changes gradually regressed to normal. His blood pressure has remained normal now for six months. The patient has been in good general health, except for some chest pain associated with exertion, since November 1960. His blood pressure on March 19, 1961, was 115/75. A repeat intravenous pyelogram performed on March 20, 1961, is shown in figure 4, revealing the return of normal function. On March 21, 1961, the blood urea nitrogen was 14 mgs., the CO_2 was 24.3 meq., the potassium was 4.4 meq./liter, and the chloride was 95 meq./liter.

Discussion

This case is clearly one of hypertension secondary to atheromatous stenosis of the left renal artery. An excellent surgical result was obtained with return of normal function in the involved kidney.

Patients with renal hypertension tend to have a fixed elevation of the blood pressure with no reduction obtained by rest or mild sedation. The response or lack of response to hypotensive drugs has generally been of no value in differentiating the etiology of hypertension. Brust and Ferris report that intravenous tetraethylammonium chloride causes a pressor response or no appreciable effect in hypertensive patients with a renal vascular lesion but caused marked



Figure 4. Postoperative intravenous pyelogram revealing the return of normal function in the left kidney.

lowering of the blood pressure in patients with hypertension secondary to parenchymal disease. This effect is not consistent and has not gained general acceptance. Our patient had received no intensive therapy but the blood pressure surprisingly fell to normal while the diagnostic studies were being performed. This is certainly contrary to the usual fixed hypertension seen with a renal artery lesion and perhaps illustrates that reduction in blood pressure should not greatly influence the physician's decision to obtain further diagnostic studies to rule out a renal etiology.

Another unusual observation in this patient was the hypokalemia. When this was observed together with the alkaline urine on one occasion the possibility of primary hyperaldosteronism was suggested. The low serum potassium and low serum chloride levels may have been influenced initially by the fact that the patient had vomited, but normal food intake beginning with the second hospital day should have corrected this by the seventh hospital day when the serum potassium was still 2.8 meq./liter. It was believed that the hydrochlorothiazide should not have produced this degree of potassium depletion in the absence of diuresis. Fuchs and his associates reported on 20 patients receiving 200 mg. of hydrochlorothiazide daily for five weeks and found that the serum potassium average changed only 0.5 meq./liter (from 4.4 meq. before to 3.9 meq. after medication). The drug may have affected the serum chloride more than the potassium but hypochloremic alkalosis was not observed following chronic hydrochlorothiazide administration in the report by Fuchs. We believe that although these factors must be considered to have had some effect, our patient did have hypokalemia as a result of his renal hypertension. This is presumably a result of secondary hyperaldosteronism and has been reported in at least four cases of renal hypertension.

The association of hypokalemia and hypertension is being recognized more frequently. This relationship is being explained by further investigations but it may create some diagnostic confusion. This association is seen in malignant hypertension, primary hyperaldosteronism, and now more recently in renal hypertension. The elevation of the serum potassium by oral administration of potassium chloride seen in our patient tended to rule out primary hyperaldosteronism as this is impossible to accomplish in this condition without sodium restriction.

The abnormal intravenous pyelogram was consistent with the diagnosis of renal hypertension but most authors agree that this is not a reliable diagnostic tool in detecting renal hypertension. In 6 of 20 patients reported by Yendt and his associates the intravenous pyelogram was normal. Brust and Ferris found normal intravenous pyelograms in seven of nine patients with hypertension caused by renal vascular abnormalities.

Increased concentration of the dye on the affected side has been reported.

As in the usual case, aortography was the most important diagnostic study performed on this patient. We have been reminded by Revell and associates, however, that false positive renal angiograms may occur.

It is often difficult to study the patient with hypertension in a way that will insure that renal and adrenal causes are not overlooked and still avoid unnecessary, costly, and sometimes hazardous procedures. To successfully handle this problem the physician must order special diagnostic tests after carefully evaluating the patient with special emphasis upon the history. Our patient presented with the first characteristic listed by Yendt and his associates who grouped the features which suggest the possibility of renal hypertension as follows: (1) patients in whom the hypertension is of recent onset and rapidly progressive, with the early development of symptoms; (2) elderly patients in whom malignant hypertension develops suddenly; (3) young patients in whom no other cause for hypertension can be found; (4) patients of any age with known essential hypertension in whom symptoms abruptly become worse; (5) patients whose history suggests the possibility of a renal vascular accident, i.e., a history of peripheral arterial emboli, of renal trauma, of some surgical accident such as ligation of an aberrant renal artery, or of an unexplained attack of pain in the loin or abdomen which might have accompanied renal infarction. To remind us to consider a renal etiology in patients with a longer duration of hypertension, Klein and McChesney have recently reported a case with hypertension of 13 years duration which was secondary to an aneurysm of the renal artery and which was cured by nephrectomy. Although varying lesions of the renal artery have been reported to cause hypertension, the most frequent cause of renal artery narrowing is an atheromatous plaque.

Renal hypertension has previously been treated by nephrectomy. This case illustrates that definitive procedures may be employed to correct the vascular lesion and cure the hypertension while preserving a normally functioning kidney.

The authors are grateful for the assistance of Dr. Louis Scarpellino and his associates in the department of radiology.

References

1. Yendt, E. R., Kerr, W. K., Wilson, D. R., and Jaworski, Z. F.: The diagnosis and treatment of renal hypertension. *Am. J. Med.*, 28:169, 1960.
2. Hodges, C. V.: Patient selection for renal hypertension work-up. *G. P.*, 23:117, May, 1961.
3. Brust, A. A. and Ferris, E. B.: The diagnostic approach to hypertension due to unilateral kidney disease. *Ann. Intern. Med.*, 47:1049, Dec., 1957.
4. Fuchs, M., Mallin, S. R., Irie, S., Hernando, L., and
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Mosquito Bites

An Antihistamine in the Symptomatic Prophylaxis of Mosquito Bites

COL. CARL D. SIEGEL, M.C.,* and
LT. COL. RICHARD W. GUNN, M.C.**

CONSIDERABLE DISCOMFORT may attend the usual human reaction to the instillation of mosquito saliva into the tissues. In areas where mosquitoes are particularly abundant this discomfort may result in loss of personal efficiency.

According to Hudson this reaction is of the hypersensitive type in response to the injection of an antigen, mosquito saliva. The expected human response is wheal formation usually accompanied by erythema and pruritus. The postulate that histamine release is responsible for this reaction has stimulated the trial and use of antihistamines in the control of symptoms resulting from various insect bites.

This study was performed to evaluate the efficiency of an antihistamine, "Perazil"† brand Chlorcyclizine Hydrochloride, in the control of such symptoms in a group exposed to contact with mosquitoes. This particular medication was chosen because of a desire for continuous effect with minimum inconvenience. As demonstrated by Castillo and others, chlorcyclizine gave marked protection to guinea pigs against histamine aerosol for over 23 hours. Clinical observations by Cullick and Ogden further attested to the drug's prolonged effect in the human.

Method and Materials

The population under study was part of the 35th Infantry Division of the Missouri-Kansas Army National Guard undergoing annual field training in 1960 at Camp Ripley, Minnesota. Previous experience had demonstrated the high incidence of mosquito bites in this locale, and its excellence for such a trial. The investigation was conducted during a 72 hour bivouac involving 542 men, all with a previous history of hypersensitivity to mosquito bites. It was performed as a double-blind inquiry under the supervision of officers and certain selected N.C.O.'s of the 205th Medical Battalion.‡

The subjects received either a placebo, 25 mg. of

chlorcyclizine, or 50 mg. chlorcyclizine daily with the evening meal for periods ranging from two to three days.

Prior to the trial, all involved personnel received a short, printed protocol of the study, with no mention of the involved placebo, stressing the proven safety of the medications to be used.

Results

TABLE 1
TYPE OF TABLETS TAKEN

| | Men |
|-------------------------------|-----|
| Placebo | 139 |
| Chlorcyclizine (25 mg.) | 302 |
| Chlorcyclizine (50 mg.) | 101 |
| Total | 542 |

TABLE 2
INCIDENCE OF ITCHING BITES

| | Per Cent |
|-------------------------------|----------|
| Placebo | 96 |
| Chlorcyclizine (25 mg.) | 46 |
| Chlorcyclizine (50 mg.) | 49 |

TABLE 3
RELATIVE SEVERITY OF ITCHING

| | None | Mild | Moderate | Severe |
|---------------------|------|------|----------|--------|
| Placebo | 4% | 11% | 52% | 33% |
| Chlorcyclizine "25" | 54% | 32% | 9% | 5% |
| Chlorcyclizine "50" | 51% | 29% | 13% | 7% |

* Division Surgeon, 35th Infantry Division, Missouri-Kansas Army National Guard.

** Company Commander, Clearing Company, 205th Medical Battalion, Missouri-Kansas Army National Guard.

† "Perazil" brand Chlorcyclizine Hydrochloride—Burdoughs Wellcome & Co. (U.S.A.) Inc.

‡ Lt. Col. Kenneth T. Burke, DC, Commanding Officer, 205th Medical Battalion, Missouri-Kansas Army National Guard.

TABLE 4
INCIDENCE OF UNDESIRABLE
SIDE REACTIONS

| | <i>None</i> | <i>Mild</i> | <i>Moderate</i> | <i>Severe</i> |
|---------------------|-------------|-------------|-----------------|---------------|
| Placebo | 100% | 0 | 0 | 0 |
| Chlorcyclizine "25" | 99.4% | 2(0.6%) | 0 | 0 |
| Chlorcyclizine "50" | 96% | 2(2%) | 2(2%) | 0 |

TABLE 5
SUBJECTS WHO BELIEVED TREATMENT
BENEFICIAL

| | <i>Per Cent</i> |
|---------------------|-----------------|
| Placebo | 27 |
| Chlorcyclizine "25" | 89 |
| Chlorcyclizine "50" | 86 |

TABLE 6
SUBJECTS WHO WOULD WANT
TREATMENT AGAIN

| | <i>Per Cent</i> |
|---------------------|-----------------|
| Placebo | 63 |
| Chlorcyclizine "25" | 90 |
| Chlorcyclizine "50" | 88 |

Comments

It is believed that the results in Tables 2, 3 and 5 constitute obvious statistical endorsement of the antihistamine, chlorcyclizine hydrochloride, as an effective prophylactic against the undesirable symptoms associated with mosquito bites.

Of interest are the results in Table 6 in that 63 per cent of the placebo group wished to try the medication again despite the fact that only 27 per cent of the group thought the medication helpful. It is interesting to speculate as to the cause of this reception. In an area where insect bites were so troublesome, it may represent a strong desire for help.

Side effects did not occur with the placebo, and with chlorcyclizine were limited to slight drowsiness, not sufficient to warrant discontinuing the drug, at the 25 mg. dose. With the 50 mg./day dose there were two cases of drowsiness sufficient to make the subject

A double-blind study of the value of prophylactic antihistamine against mosquito bites is reported. Tests performed on National Guardsmen under field conditions demonstrate the effectiveness of the medication.

reluctant to use the medication, and two cases of slight drowsiness in which this disadvantage was significantly less than the advantage of antipruritus.

It would seem, therefore, that chlorcyclizine hydrochloride is an excellent antipruritic prophylactic against mosquito bites, and that 25 mg./day would be the ideal dose with insignificant side effects.

Summary

Double-blind placebo controlled trials conducted on military personnel in bivouac demonstrated the effectiveness of 25 mg. daily of "Perazil" brand Chlorcyclizine in the prophylaxis of itching from mosquito bites. Eighty-nine per cent of the subjects noted its effectiveness in contrast to a 27 per cent favorable response from the placebo group.

References

1. Hudson, A., Bowman, L., and Orr, C. W. M., *Science* 131:1730 (1960).
2. Hudson, A., McKiel, J. A., West, A. S., and Bourns, T. K. R., *Mosquito News* 18:249 (1958).
3. Speisman, M. G., *Illinois Medical Journal* 113:295 (June, 1958).
4. Castillo, J. C., de Beer, E. J., and Jaros, S. H., *Journal of Pharmacology and Experimental Therapeutics* 96:388 (1949).
5. Cullick, L., and Ogden, H. D., *Southern Medical Journal* 43:644 (1950).

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(Continued from page 506)

Moyer, J. H.: A review of the pharmacology and clinical observations of hydrochlorothiazide. *A.M.A. Arch. Intern. Med.*, 105:39, Jan., 1960.

5. Laidlaw, J. C., Yendt, E. R., and Gornall, A. G.: Hypertension caused by renal artery occlusion simulating primary aldosteronism. *Metabolism*, 9:612, July, 1960.
6. Laragh, J. H., Ulick, S., Vlodzimierz, J., Kelly, W. G., and Lieberman, S.: Electrolyte metabolism and aldosterone secretion in benign and malignant hypertension. *Ann. Intern. Med.*, 53:259, Aug., 1960.
7. Cordonnier, J. J.: Unilateral renal artery disease with hypertension. *J. of Urology*, 82:1, July, 1959.
8. Brown, J. J., Peart, W. S., Owen, K., Robertson, J. I. S., and Sutton, D.: The diagnosis and treatment of renal artery stenosis. *Brit. Med. J.*, 2:327, July, 1960.
9. Revell, S. T. R., Borges, F. J., Entwisle, G., and Young, J. D.: An appraisal of certain tests for the detection of hypertension of unilateral renal origin. *Ann. Intern. Med.*, 53:970, Nov., 1960.
10. Klein, R. L., and McChesney, J. A.: Hypertension secondary to aneurysm of the renal artery. Report of a case of long duration cured by nephrectomy. *Ann. Intern. Med.*, 54:292, Feb., 1961.

Autoimmunity and Dermatology

A Relatively Recent Concept of the Cause of Some Skin Diseases

GORDON C. SAUER, M.D.*

WHAT IS AUTOIMMUNITY? You have all seen this term in the recent medical literature. It has even been the object of several newsy articles in "The only weekly medical newspaper, *The Medical Tribune*." What is it? Autoimmunity is the concept that an organism, for instance a human, has the ability to develop antibodies to its own tissues and subsequently it has the ability to damage or destroy the structures containing the immunizing antigens. In simpler terms it is a concept of auto or self-destruction. Another term might be "tissue suicide."

At once, one can sense that this is an interesting and an also somewhat frightening concept. The purpose of this paper is to review some of the original work on autoimmunity as it relates to non-dermatologic diseases, and then to see how much of the autoimmune theory and research has to date been applied to the field of dermatology.

F. M. Burnet of Australia, recent recipient of the Nobel Prize in Medicine for his immunologic research, was one of the first to ponder on the question of the ability of body cells to recognize "self," or their own cells, from "non-self" or foreign cells. He and his co-workers felt that this ability must be explained.

Burnet recalled the work of Owens who had demonstrated that cattle twins often had a mixing of two red-blood-cell groups during intra-uterine life. Yet no antigen-antibody reaction developed—in other words the two different red blood cells could exist side by side in the same animal and not agglutinate. Amazingly enough, several years later this phenomenon was found to occur in a human.² This person, a young woman who had come to a blood donor station to give blood, was dubbed as the first "composite human being" or a "chimera." In Greek mythology a chimera is a fire-breathing female monster with a goat's body, a lion's head, and a dragon's tail—a legendary creature of "mixed" blood. This woman was found to have both A and O type red blood cells on this routine blood typing. How did she get them? She was asked if she had a twin and she surprisingly said "Yes." But he had died at the age of 3 months. The explanation, then, for this bizarre finding ap-

In 1949 I read one of Dr. Hans Selye's first articles on "The Adaptation Syndrome." As I read through the hundred or so pages of this article, where he presented proof after proof for his new theory on adaptation to stress as it related to all organs of the body including the skin, it dawned on me, as I know it did on many others, that here was something new in the field of medicine. It spurred me on to do some minor research in this field. Since then a multitude of scientists have torn down or built up Selye's original ideas. I now get this same impression of something new and exciting on the medical horizon while reading the few articles that are presently accumulating regarding autoimmune disease in man. There isn't a day that goes by in my private and clinic practice when a patient is seen with a puzzling skin disease, or with a common everyday disease with an unusual variation, that I don't feel that this case might represent an autoimmune disease. The problem is first to prove this idea with the immune tests now available and those tests yet to come, and secondly, to alter this immune response with therapy based on the knowledge gained. *Clinical medicine is on the verge of another great advance thanks to scientific medicine.*

peared to be the fact that during intra-uterine life she had established vascular communication with her twin. His erythroblasts became established in her marrow before her own immune apparatus had begun to function to distinguish "self" from "non-self." When the immune mechanisms matured, no antibodies were formed against her twin's red blood cells because they were accepted as her own cells were accepted.

This was an interesting theory. But could it be made to happen in laboratory animals?

Medawar and his group then proceeded to prove this theory by showing that animals could be forced

* Head of the Section of Dermatology, University of Kansas School of Medicine. This paper was read at a Symposium on Dermatology at the University of Kansas on March 23, 1961.

to tolerate foreign tissues. They showed that if mice fetuses in the last week *in utero* or even on the first day of life were injected with living cells from a different strain of mice, these injected mice would at a later date be able to tolerate a skin graft from the "foreign" strain of mice. For this and additional studies, Medawar also received the most recent Nobel Prize in Medicine along with Dr. Burnet.

These experiments provided the basis for new concepts of immunology. To quote Dr. Burnet, "Instead of being concerned primarily with the phenomena of immunity against (bacterial) infection, immunologists are primarily interested today in the way in which the body maintains its genetic and biochemical integrity, and in possible ways by which this mechanism can be circumvented in the interests of therapy or surgical repair on the one hand, or may, by its spontaneous malfunctioning, give rise to serious disease."

Technically speaking, the proof of the presence of an autoimmune process is one of the most complex phases of medicine in an already increasingly complex scientific era. A whole new field of terminology, or at least an elaboration of already partially known or used terms and theories, is presented by the workers in this field. Terms such as autoimmunity, hypersensitivity, autosensitization, self and non-self, graft-versus-host-reaction, antigenic determinant, instructive contact, preadapted patterns, clonal-selection theory, and so on, are terms and phrases that, while not new, are undergoing revision and elaboration as the result of advancing research and clinical findings in this expanding field.

As a goal toward proof that a particular auto-antibody can be accepted as of pathogenic significance in a particular disease, Witebsky and his co-workers have evolved four postulates. These can be likened to the original Koch's postulates for the proof of a bacterial cause of disease. The four autoimmune postulates that must be fulfilled are as follows: (1) Free circulating antibody must be demonstrated by direct means, or cell bound antibody must be demonstrated by indirect means; (2) the specific antigen against which the antibody is directed must be recognized; (3) antibodies must be produced against the same antigen in experimental animals; and (4) pathological changes in the corresponding tissues of an actively sensitized experimental animal must be basically similar to those found in the human disease.

What tests are used for proof of an autoimmune process? Some old and some new procedures are used, namely agglutination tests, precipitation tests, complement fixation tests, fluorescent marking, skin tests, and tissue cultures.⁵ In any given disease, a certain test may be more specifically indicated than another. There have been a plethora of studies done using laboratory animals but only a few on humans.

What is the status of autoimmunity to date with regard to clinical medicine? In the general field of medicine it has been quite conclusively proved that Hashimoto's thyroiditis, and acquired immune hemolytic anemia, are autoimmune diseases. Not so conclusively proved, but assumed to be part of this disease-reaction, is rheumatoid arthritis, rheumatic fever, certain thrombocytopenic conditions, and polymyositis.¹

What is the present status in the field of dermatology?

Disseminated lupus erythematosus (L.E.) must be discussed first because it has been the subject of the most intensive autoimmune studies. There are several findings to indicate that an autoimmune mechanism is causative, or at least part of the pathologic picture, in disseminated L.E.⁶ The L.E. cell test appears to be part of an autoimmune reaction. Haserick and co-workers have shown that the test is definitely related to a specific gamma globulin. The finding of false positive serologic tests for syphilis in approximately 20 per cent of patients with L.E., while not specific, also offers additional proof of an autoimmune mechanism. Other evidence of circulating auto-antibodies has been reported. In spite of this accumulating evidence, however, definite proof of *specific* antibodies being causative of L.E. is lacking. As a result, the only conclusion that can be safely drawn now, is that there are auto-antibodies in patients with L.E., but that they may be the result of the disease and not the cause.

Rook and others want to include dermatomyositis and scleroderma along with L.E. as autoimmune diseases. But as stated above, the evidence of auto-antibodies as the only causative factor for these so-called collagen diseases is lacking.

Now let us discuss a disease that has been considered for years to be related to an auto-allergic mechanism. This disease appears in the literature under various names—autosensitization dermatitis, autoeczematization, id reaction, etc. It is defined as a dermatitis secondary to and usually removed from a primary localized dermatitis, such as a stasis dermatitis, nummular eczema, neurodermatitis, atopic eczema, or contact dermatitis. The most typical example is the case of a chronic leg dermatitis due to venous stasis which, for usually no apparent reason, suddenly becomes acutely red and weeping. This is followed by grouped vesicular patches developing further up on the leg and thigh, and in some cases on the arms or even the entire body. You have all seen these cases and been most disturbed about the unpleasant development.

Rook and Parish have individually attempted to theorize and even prove by appropriate laboratory tests, that these cases are part of an autoimmune phenomenon.

Rook theorized that chemical or bacterial agents act on the chronic dermatitis to modify the potentially antigenic skin tissues. This could cause an autoimmune response, or spread of the dermatitis. Other factors may also play a role.

Parish attempted to prove these theories by a series of tests on two patients with autosensitization dermatitis. He took specimens of skin and demonstrated in both cases by agglutination tests, complement fixation tests, skin tests, or tissue culture preparations, that auto-antibodies were present. His conclusion was that autosensitization to skin may have occurred in these cases.

Exfoliative dermatitis, secondary to chronic localized skin disease, is thought by Rook to be in this same category of autosensitization.

Psoriasis as an autoimmune disease has been investigated by Aswaq and Raffel. They tested for the presence of antihuman skin antibodies in 32 patients with psoriasis. By using the passive cutaneous anaphylactic reaction procedure they got positive reactions in 81 per cent or 26 out of 32 psoriasis patients. A series of tests using control patients resulted in no reactions. Their conclusion was that specific, apparently immunologic, reactions could be evoked in guinea pigs with serum and tissue from psoriatic patients. Thus, psoriasis may be based upon an autoimmune mechanism.

Finally let me briefly mention a proven autoimmune syndrome reported by Shelley and Hurley. They reported on a most unusual case of a 26 year old white woman who had three problems when she was first seen—massive breast enlargement, extensive hyperpigmentation of her skin, and migrating waves of urticarial bands or ridges. This latter condition is clinically called erythema annulare centrifugum—a typical short dermatologic name—but nonetheless an accurately descriptive term. Intensive investigative studies revealed the presence of an autoallergic state. She was found to have a specific circulating auto-antibody to her own cystic breast tissue. Immunologic agglutination tests were performed after 13½ pounds of breast tissue were removed surgically. As the authors stated, their tests were greatly facilitated by having an unlimited supply of antigenic tissue. An

additional finding was a positive L.E. cell test which the authors related to this whole problem of autoimmunity.

Oral corticosteroids given before surgery had only resulted in slight temporary relief from her pruritic and burning hive-like lesions. Following the partial amputation of her breasts she experienced a considerable reduction in the severity of her lesions and in the amount of itching. Reinstitution of oral corticosteroids at that time resulted in complete disappearance of all of the inflammatory circular lesions. At present she is maintained on 4 mg. per day of triamcinolone with only an occasional annular lesion appearing.

Shelley and Hurley concluded that the cystic breast tissue constantly released antigen into the blood stream where it was carried to and fixed in the skin. The resulting antigen-antibody reaction which then occurred in the skin produced redness, edema and itching. The pigmentation was due to the chronicity of the waves of inflammation migrating across the skin.

References

1. Burnet, F. M.: *The New Approach to Immunology*, New England J. Med., 264:24 (Jan. 5) 1961.
2. The Case of Mrs. "McK," *Physician's Bulletin*, 25:50 (May-June) 1960.
3. Billingham, R. E., Brent, L. and Medawar, P. B.: *Quantitative Studies on Tissue Transplantation Immunity. III. Actively Acquired Tolerance*, *Phil. Tr. Roy. Soc. (London)*, 239:357, 1956.
4. Witebsky, E., Rose, N. R., Terplan, K., Paine, J. R. and Egan, R. W.: *Chronic Thyroiditis and Autoimmunization*, *J.A.M.A.*, 164:1439 (July 27) 1957.
5. Parish, W. E.: *Laboratory Investigations of Auto-sensitization to Skin*, *Brit. J. Derm.*, 73:10 (Jan.) 1961.
6. Editorial: *Auto-antibodies and Lupus Erythematosus*, *Brit. Med. J.*, 2:1141 (Oct. 15) 1960.
7. Haserick, J. R., Lewis, L. A. and Bortz, D. W.: *Blood Factor in Acute Disseminated Lupus Erythematosus: I. Determination of Gamma Globulin as Specific Plasma Fraction*, *Am. J. Med. Sci.*, 219:660, 1950.
8. Rook, A.: *Autosensitization to Skin*, *Brit. J. Derm.*, 73:1 (Jan.) 1961.
9. Young, A. W.: *Dynamics of Autosensitization Dermatitis*, *A.M.A. Arch. Dermat.*, 77:495 (May) 1958.
10. Aswaq, M., Farber, E. M., Moreci, A. P. and Raffel, S.: *Immunologic Reactions in Psoriasis*, *Arch. Dermat.*, 82:663 (Nov.) 1960.
11. Shelley, W. B. and Hurley, H. J.: *An Unusual Auto-immune Syndrome*, *Arch. Dermat.*, 81:889 (June) 1960.

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Tumor CONFERENCE

Hodgkin's Disease in the Anterior Mediastinum

Edited by T. P. MARAMBA, JR., M.D.

Dr. Reed (Moderator): The case to be discussed at tumor conference today presents some of the problems encountered in the management of a mass in the mediastinum. Will the student please present the case?

Mr. Coppinger (Student): P. S. is an eighteen-year-old white woman who was first admitted to the University of Kansas Medical Center on September 4, 1961. She was seen in the emergency room with the complaints of headache, weakness, and stiffness of the neck. Two weeks prior to admission, she began to have headaches, stiffness of the neck, cough, and vomiting. She noted fever three days before admission. A local physician was called and gave the patient two injections of penicillin.

Three weeks prior to admission, she had a chest x-ray at the Wyandotte County Health Department in which a radiopaque mass was noted in the right anterior mediastinum. There had been weakness and a fifteen-pound weight loss in the last three months.

On examination, the patient was moderately acutely ill and had some nuchal rigidity. There was flushing of the face and hyperemia of the pharynx. A few shotty nodes were felt in the left cervical region. There were a few wheezes in the left chest. No abnormal neurologic signs were noted.

Laboratory examinations: WBC—17,440 per cu. mm. with 80 per cent neutrophils, 16 per cent lymphocytes, 3 per cent monocytes and 1 per cent eosinophils. Spinal fluid—opening pressure 200 mm. water, clear and colorless; WBC—116 per cu. mm. with 60 per cent lymphocytes, 40 per cent polymorphonuclear leucocytes; sugar—50 mg. per cent; protein—42 mg. per cent; Wassermann—negative. Smears and

cultures for routine bacteria, acid-fast bacilli and fungi were negative. Other examinations including evaluation for febrile conditions were all essentially normal.

Posteroanterior chest x-rays and planograms confirmed the presence of the mass in the right and anterior superior mediastinum.

She was admitted into the medical service and after the subsidence of her febrile condition, a surgical consultation was obtained. A right scalene fat pad dissection was done. The lymph nodes obtained showed nonspecific hyperplastic lymphadenitis. On the 15th of September, 1961, exploration of the mediastinum was performed via a median sternotomy. A lobulated mass thought to be involving the thymus was found in the anterior superior mediastinum extending around the great vessels, slightly to the left, and more extensively into the right upper posterior aspect of the mediastinum. The whole mass was resected in three portions. The right phrenic nerve was sacrificed. The drainage tubes from the pleural cavities were removed the day after operation. The post-operative course was uneventful and irradiation therapy was started on the third post-operative day.

Dr. Heilbrunn:* It appeared, clinically, that this lady had two separate illnesses. First, she was admitted for an acute illness characterized by fever for several days, headaches, and some stiffness of the neck which was thought to be a viral encephalitis. The history of weakness and weight loss of three months' duration, and the mass discovered by chest x-ray represent another process. Perhaps, it would be helpful to view the x-ray films at this time.

Dr. Hartman (Resident in Radiology): The posteroanterior roentgenogram of the chest (*Figure 1*) shows widening of the upper mediastinum in a nodular fashion. In the lateral film (*Figure 2*), there

*Resident in Thoracic Surgery and Fellow, American Cancer Society.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Maramba is a resident-fellow in pathology, supported in part by USPHS grant 2G-125.



Figure 1. Posteroanterior chest x-ray (in lordotic position) showing a bilateral paratracheal mass in the upper mediastinum more prominent on the right side.

is a mass both anterior and posterior to the trachea. With such a lesion, one has to differentiate between a tumor of the thymus and a lymphoma in the mediastinum.

Dr. Reed: Dr. Agnew, this mass appears to extend bilaterally in the mediastinum. Does this help in the differential diagnosis of this lesion?

Dr. Agnew (Radiologist): In a young woman of this age, the bilateral location of the lesion in the mediastinum would compel us to include sarcoidosis in the differential diagnosis. If one is dealing with a man 50 years of age or older, one must consider the possibility of abnormal vascular structures. Similarly in a young child, congenital abnormalities of the great vessels must be considered. It is not possible to distinguish between a thymoma and a malignant lymphoma in this patient. Although this tumor is bilateral, it is somewhat peculiar in that it is more prominent on the right side. One might explain the smaller shadow on the left side of the chest by a vascular structure such as a diseased pulmonary artery.

Dr. Reed: Does the presence or absence of calcification help in the differential diagnosis?

Dr. Agnew: Some of the teratomas and dermoid cysts may show areas of calcification. The possibility of a neurenteric cyst is unlikely because the mass in this patient is high and anterior. There are a few neoplasms of neurogenic origin, but these usually present in the posterior mediastinum. Occasionally they arise at a higher level and can give rise to such a shadow.

Dr. Reed: It has been suggested by some that a lesion such as this in a young patient should be given

a small dose of irradiation. If the lesion decreases in size, this may be of diagnostic value.

Dr. Agnew: Both a thymoma and a lymphoma would probably shrink in size since most lymphatic tissue would shrink on irradiation. Thus, this approach would not be of diagnostic value. There are a few indications, however, for the use of irradiation. One might treat in this fashion a hemophiliac, for example, in which an operation to establish the diagnosis would be contraindicated.

Dr. Reed: Dr. Heilbrunn, what were your considerations preoperatively on this patient?

Dr. Heilbrunn: Our preoperative diagnosis on this young woman was thymoma for several reasons. One of these was the location of the mass by x-ray. Planography indicated that this lesion was rather far anterior in the mediastinum and did overlie the upper end of the pericardium. In addition to this, there was the absence of any other discernible lymph nodes and the right scalene nodes which had been removed several days earlier were relatively normal on histologic examination. We had considered a lymphoma or Hodgkin's disease preoperatively, this being our second choice for a diagnosis. However, this patient is somewhat younger than the usual patient with Hodgkin's disease and this condition is more frequent in males.

We selected the operative approach of median sternotomy because the lesion was central and it appeared, especially in the planograms, to be bilateral. This incision extended from the upper edge of the manubrium, along the midline almost to the umbilicus, affording a wide exposure of the lesion. Yet,

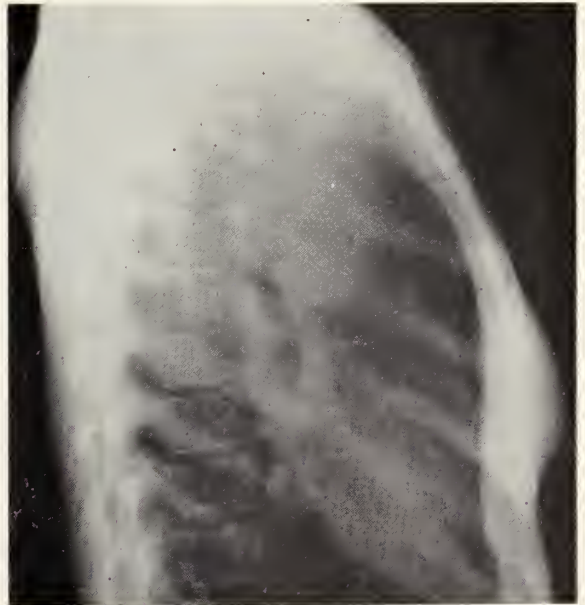


Figure 2. Lateral chest x-ray showing the mass in the upper anterior mediastinum extending posteriorly to the vertebral column and engulfing the trachea.

it is a little more stable and less painful post-operatively than the usual lateral thoracotomy incision. The patient can be fully ambulated earlier post-operatively and can have a shorter period of hospitalization.

After exposure of the area, we could see what we thought at that time to be the thymus lying on the anterosuperior aspect of the pericardium. The right lobe of this tissue contained a rather firm mass. The remainder of the lesion was located around the superior vena cava and extended posteriorly towards the spine in the midline with a small amount of tissue extending towards the left. We had several pathologists examine the mass and from gross examination alone, we could not tell whether it was a lymphoma or a thymoma.

Dr. Reed: The nature of the mass removed from the mediastinum was apparently difficult to ascertain from its gross appearance. Will you tell us what histologic examination revealed, Dr. Svoboda?

Dr. Svoboda (Pathologist): The tissue was submitted in three separate masses measuring 9, 11, and 12 cm. in largest dimension. The masses were firm, lobulated, and encapsulated. The firm yellow cut surface was finely nodular and had several fairly homogeneous areas interrupted by fibrous trabeculae.

Microscopically, there is seen at the periphery of one of the fragments, extension of the lymphoid tissue into the capsule of the lymph node. This change provokes a suspicion of malignancy, although it is not unequivocal evidence for malignancy. The rest of the tissue shows remarkable destruction of nodal architecture. Follicles are absent and the only remaining histologic feature of lymph node is the presence of peripheral sinuses. There is nodular hyaline fibrous tissue replacing much of the nodal parenchyma, and interspersed throughout is a very polymorphous cellular background consisting of plasma cells, neutrophils,

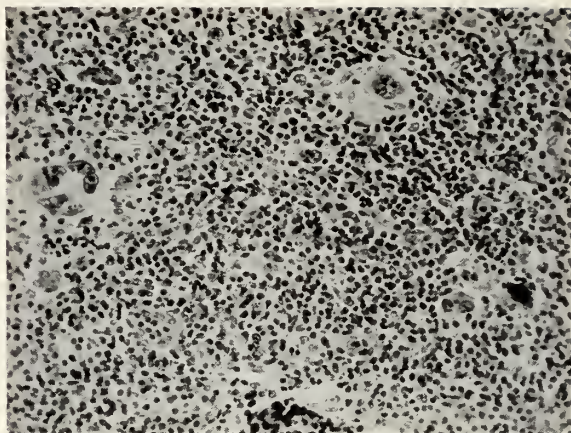


Figure 4. Photomicrograph of mass showing the polymorphous cellular infiltrate including multinucleated giant cells and a Reed-Sternberg cell (near lower right-hand corner) ($\times 325$).

mononuclear cells and, in many areas, a marked concentration of eosinophils (Figure 3). There is fine reticular fibrosis and several areas of frank necrosis as well as areas of incipient necrosis of the parenchyma. Several fields are occupied by abnormal reticulum cells, abnormal from the point of view of size, nuclear configuration, the presence of large nucleoli and abnormal mitoses. In addition, there are a few Reed-Sternberg cells, characterized by binucleation and large eosinophilic nucleoli (Figure 4), and multinucleated giant cells. In summary, there is total obliteration of architecture, extracapsular extension of lymphocytes, a polymorphous cellular infiltrate, parenchymal fibrosis, necrosis, a large number of eosinophils and bona fide Reed-Sternberg cells, making it a classical and florid example of Hodgkin's granuloma.

Dr. Reed: May Hodgkin's disease be divided into several types histologically? How do these types correlate with prognosis?

Dr. Svoboda: On the whole, the separation of the so-called paraganuloma, which was suspected in some areas in this tissue, is worthwhile. Hodgkin's paraganuloma is also referred to as a "benign form of Hodgkin's disease" because some of the patients survive from twelve to fifteen years and some die from other disease.¹ Hodgkin's paraganuloma is characterized histologically by the presence of numerous Reed-Sternberg cells superimposed upon a background of normal-looking lymphocytes such that there is a rather benign picture in spite of the presence of these abnormal cells. The paraganuloma is a bona fide type to justify its segregation from other types, but occasionally it evolves into the more malignant types such as a granuloma, such as this case was, or Hodgkin's sarcoma. The latter has a prognosis which is even poorer than Hodgkin's granuloma. It is characterized

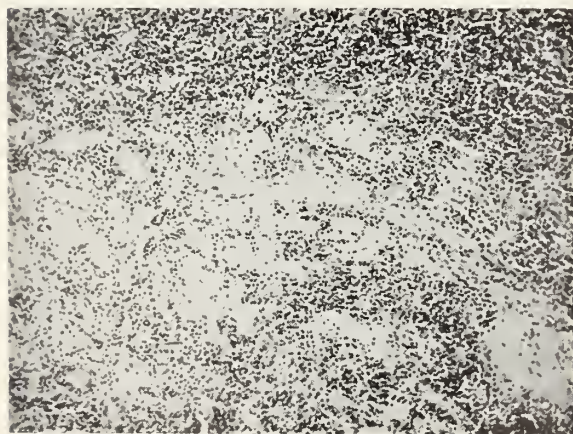


Figure 3. Photomicrograph of mediastinal mass showing nodular areas of fibrosis and a polymorphous cellular infiltrate in the nodal parenchyma ($\times 156$).

by almost total replacement of the nodes by abnormal reticuloendothelial cells and the presence of Reed-Sternberg cells. There is not only a fairly good basis for histological division of the three forms of Hodgkin's disease, but these three forms appear occasionally to be clinically separable as well.

Dr. Reed: Dr. Heilbrunn, what did you decide to do for the patient?

Dr. Heilbrunn: We decided to attempt a total resection of the mediastinal tumor for several reasons. One of these was that it could have been a thymoma. The second was that if this indeed was a lymphoma, it was localized and there have been some reports in the literature that patients do somewhat better if a localized lymphomatous tumor can be resected. The third reason was that even if it was a lymphoma and was not localized, the mass was wrapped around the superior vena cava in such a way that it would probably cause superior vena caval obstruction in the near future.

In briefly reviewing the literature on the operative treatment of localized Hodgkin's granuloma, we encountered a couple of reports. One of these was from Michigan in 1948.² This was a report of mediastinal lymphoma resected more or less accidentally, in other words, with a different preoperative diagnosis. There were only four patients in the group. One of these died within a year of Hodgkin's disease. The other three were living and well without any evidence of lymphoma after a post-operative follow-up of three and one-half to five and one-half years. In Hodgkin's disease, localized to the neck, a group from Chicago reported in 1958³ that 60 per cent of their cases were living and well and without evidence of recurrent disease five years after radical neck dissection. Of these, only half had received irradiation therapy. What this lady's prognosis will be with a localized lymphoma of intermediate degree of malignancy, with apparent gross resection of all involved tissue, and with x-ray therapy is difficult to predict.

Dr. Reed: What is the radiosensitivity of lymphomas in the mediastinum?

Dr. Agnew: Radiosensitivity and radiocurability are not synonymous for malignant lymphomas. Based upon the abundant literature on the use of irradiation, it is quite clear that if the mediastinal tumor receives an excess of 3000r, there is rarely local recurrence.⁴ Several reports confined to Hodgkin's disease support the idea of local success in this dose range.⁵ This doesn't mean the disease is cured since it may appear in other areas. However, there are radiologists who, in a small series, have extended the primary irradiation to the next relay of nodes. Their results have been gratifying because in the benign type of diseases, there have been no recurrences. Dr. Kaplan emphasized this approach when he was here last spring.⁶ Therefore, we are planning to treat this pa-

tient in this fashion. Inasmuch as there is probably still some tumor in the mediastinum, we will irradiate the mediastinum, and the supraclavicular and axillary regions with a tumor dose in the neighborhood of 4000r which will be well tolerated by the patient.

Dr. Reed: What is the mechanism of the alcohol-induced pain observed in Hodgkin's disease?

Dr. Svoboda: It is reported from time to time that patients with Hodgkin's disease, when they imbibe alcohol, complain of severe excruciating pain somewhat resembling bone pain in the back and other regions of the body.⁷ Occasionally there is pruritus, a sense of constriction of the neck, increase in size of peripheral lymph nodes, or fever after heavy drinking. After testing different types of alcoholic beverages and other vasodilator agents, there is no doubt that ethyl alcohol is the offending substance. The basis of this action is unknown.

Student: Is it localized to the areas involved by the lymphoma?

Dr. Svoboda: Yes. The pain is frequently felt at the site of demonstrable disease or where disease is demonstrated later.⁷ This phenomenon has been observed in patients with Hodgkin's disease but not in other lymphomas, and it may be the first symptom noted by the patient.

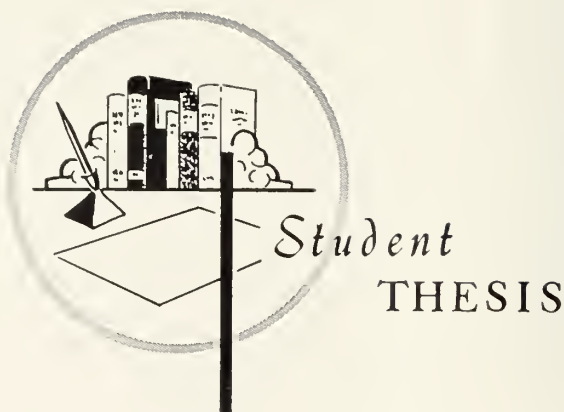
Dr. Reed: In summary, this is a young woman who had an asymptomatic mediastinal mass which turned out to be localized Hodgkin's granuloma. The lesion was grossly completely resected and x-ray therapy is being administered to the mediastinum and the neighboring groups of lymph nodes. Despite the early discovery and treatment of an apparently localized lymphoma, the prognosis is guarded because of the propensity of this disease for multiple sites of origin.

References

1. Wright, C. J. C.: The "Benign" Form of Hodgkin's Disease (Hodgkin's Paragranuloma), *J. Path. Bact.* 80:157, 1960.
2. Evans, B. H. and Haight, C.: Surgical Removal of Unsuspected Mediastinal Lymphoblastomas, *Arch. Surg.* 57:307, 1948.
3. Slaughter, D. P., Economou, S. G., and Southwick, H. W.: Surgical Management of Hodgkin's Disease, *Ann. Surg.* 148:705, 1958.
4. Rosenberg, S. A., Diamond, H. D., and Craver, L. F.: Lymphosarcoma: The Effects of Therapy and Survival in 1,269 Patients in a Review of 30 Years' Experience, *Ann. Int. Med.* 53:817, 1960.
5. Scott, R. M.: Time-Dose Relationship in Hodgkin's Disease, *Radiol.* 76:276, 1961.
6. Kaplan, H. S.: Curability of Early Hodgkin's Disease by Radiotherapy, Presented at Postgraduate Course in Radiology and Radioactive Isotopes at the Univ. of Kansas Medical Center, Feb. 1961.
7. Hall, C. A. and Olson, K. B.: Alcohol-Induced Pain in Hodgkin's Disease, *New Eng. J. Med.* 253:608, 1955.

Additional Pertinent Reference

- LeRoux, B. T.: A Clinical Appraisal of Thymic Lesions and Anterior Mediastinal Lymphomata, *Thorax* 16:156, 1961.



The Effect of Trimethaphan (Arfonad) On Regional Blood Flow and Oxygen Consumption During Extracorporeal Perfusion

JAMES E. BICKLEY, M.D., Dallas, Texas

FACTORS REGULATING distribution of blood in the body are generally related to changes in resistance, variations in pressure, volume of flow, and the opening or closing of arteriovenous shunts. These various changes may be generalized, affecting the entire organism, or localized so that only one organ or region is altered. If pressure is taken as indicative of resistance one assumes that flow is constant. In the intact organism factors changing resistance, such as hypoxia, may similarly change flow (cardiac output) and pressure is not proportional to resistance in this situation.

Flow, resistance, and pressure measurements during extracorporeal circulation have been the object of numerous investigations, but in general have been concerned only with total flow and total resistance. Extracorporeal circulation furnishes a unique technique for determining the effects of various conditions on resistance and the presence of arteriovenous shunts. Since flow remains constant, changes in pressure are directly proportional to resistance. Arteriovenous shunts can be determined when flow and tissue metabolism are constant and met by a decrease in the arteriovenous oxygen difference. Further, by measuring the venous return from a region or an organ,

comparison with the entire organism can be made and factors affecting local flow analyzed.

This report is an attempt to determine the effect of trimethaphan camphorsulfonate (Arfonad)* on regional blood flow and oxygen consumption in the perfused dog. The determination of the distribution of the circulating volume before and after intravenous injections of Arfonad has been done by measurement of individual caval flow during extracorporeal perfusion. Oxygen consumption of the whole body and of the regions drained by each of the vena cavae has been measured simultaneously and the effect of Arfonad noted.

Methods

Adult dogs varying from 9.0 to 15.7 Kg. were anesthetized with a two and a half per cent solution of sodium pentothal given intravenously. An endotracheal tube was inserted and connected to an automatic ventilator. Right thoracotomy was done with entrance to the right pleural cavity through the 4th or the 5th interspace. Meticulous hemostasis was secured and a chest wall retractor inserted. The azygos vein was ligated. Umbilical tapes were passed about the extrapericardial portions of the superior and inferior vena cavae.

Incoagulability of the blood was achieved by the administration of heparin, 1.5 to 2.00 mg/kg. Both

* d-3,4(1',3'-dibenzyl-2'-keto-imidazolido)-1,2-trimethylene thiophanium d-camphorsulfonate.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. James E. Bickley is now serving internship at the Parkland Memorial Hospital, Dallas, Texas.

femoral arteries were exposed and cannulated. One cannula was attached to a manometer, or pressure transducer, for recording blood pressure. The other femoral arterial cannula was attached to the arterial side of a Kay-Cross rotating disc oxygenator. Each vena cava was then cannulated with a one-quarter inch (I.D.) plastic tube, these being inserted through a single right atriotomy. After proper positioning of the caval cannulae the umbilical tapes were tightened and the cannulae were connected to Y-tubes. One limb of the Y-tube passed to the ingress side of a Wilson Rotameter, while the other passed to another Y-tube on the other side of the flow meter. The egress tube from the flow meter was connected to the distal Y-tube. In this flow meter the float of the rotameter is detected electro-magnetically and indicated by a microammeter. From the single branch of the Y-tube in each caval line the connection passed to final Y-tube to enter the venous reservoir of the oxygenator via a single tube. This facilitated taking samples of mixed venous blood unaltered by blood added to the venous reservoir.

Blood was oxygenated by the disc oxygenator using 100 per cent oxygen as the perfusing gas and a disc speed of 120 r.p.m. The arterial tubing was passed through a Sigmamotor pump en route to the femoral arterial cannula. The Sigmamotor pump provided a constant flow and was calibrated upon completion of each experiment. Flow in these animals was constant throughout each experiment, but varied among the animals from 47 to 113 ml/min/kg. Normothermic blood temperature was maintained by a thermostatically controlled heating coil external to the glass cylinder of the Kay-Cross oxygenator.

At frequent regular intervals recordings were made of the mean blood pressure, venous return from both the superior and inferior vena cavae, the dog's temperature, and samples were withdrawn for the determination of pH and oxygen content. Total and regional oxygen consumption was calculated by multiplying arteriovenous difference by flow. The electrocardiogram was recorded simultaneously with these measurements. In addition, the level of blood in the venous reservoir and the oxygenating cylinder was noted. Blood was added to the venous reservoir to maintain a constant level and all additions carefully noted.

At the beginning of the experiment the apparatus was primed with freshly drawn heparinized blood using 20 mgm. of heparin per 500 ml. of blood. The rotameters were inserted parallel so that when a reading was desired the caval blood was diverted to them by occluding the by-pass tubing. The rotameters were kept at equal heights and essentially the same height for each experiment. The length of tubing between the individual flow meters and the animals was kept constant. Each rotameter was calibrated in its original position upon the completion of the experiment. Rotameters were of the same size and capacity. Numerous testings showed a linear response over the range of recorded values for these flow meters. Previous determinations with these rotameters had shown a calibration constant within five per cent for a 6-8 hour period.

Oxygen in volume per cent was determined directly on the Van Slyke apparatus except in dogs No. 52 and No. 56. In these two animals per cent saturation

TABLE I
EFFECT OF ARFONAD ON BLOOD DISTRIBUTION DURING EXTRACORPOREAL PERFUSION

| Exp. No. | Dose (mg) | Before Arfonad | | After Arfonad | | % Increase SVC | Perfusion ml/min/kg |
|-------------|--------------|----------------|-------|---------------|-------|-------------------|------------------------|
| | | Mean BP | % SVC | Mean BP | % SVC | | |
| 31 | 25 | 80 | 50 | 30 | 63 | 26 | 74 |
| 32 | 25 | 90 | 25 | 30 | 68 | 86 | 87 |
| 33 | 90 | 110 | 30 | 40 | 55 | 83 | 47 |
| 46 | 50 | 90 | 24 | 30 | 66 | 175 | 97 |
| 48 | 50 | 150 | 27 | 60 | 58 | 115 | 68 |
| 49 | 50 | 90 | 35 | 40 | 59 | 69 | 96 |
| 50 | 50 | 90 | 31 | 40 | 68 | 119 | 93 |
| 51 | 50 | 120 | 31 | 50 | 60 | 94 | 84 |
| 52 | 50 | 90 | 51 | 50 | 66 | 29 | 87 |
| 56 | 50 | 90 | 46 | 30 | 60 | 30 | 82 |
| 61 | 50 | 75 | 41 | 30 | 63 | 54 | 113 |
| 62 | 50 | 110 | 53 | 50 | 64 | 21 | 79 |
| 63 | 50 | 110 | 49 | 40 | 69 | 41 | 83 |
| Mean | | 100 | 38 | 40 | 63 | 72 | 84 |

of oxygen was determined colorimetrically on the Kipp hemoreflexor and then converted to volume per cent after hemoglobin was determined on the Van Slyke apparatus. Blood pH was recorded in all samples.

Results

In each experiment Arfonad was not given until after 20-30 minutes when the mean blood pressure was constant, blood was neither being lost nor gained by the perfusion apparatus, and the readings of the

TABLE II
EFFECT OF ARFONAD ON OXYGEN CONSUMPTION DURING EXTRACORPOREAL PERFUSION

| Exp. No. | Region | Before Arfonad* | After Arfonad* | | | |
|-------------|-----------------|--------------------|----------------|-----------|------------|------------|
| | | | 0-7 min. | 8-12 min. | 13-18 min. | 19-47 min. |
| 46 | WB† | — | — | — | — | — |
| | SVC‡ | 23 | 26 | 21 | 19 | — |
| | IVC§ | 52 | 30 | 28 | 25 | — |
| 48 | WB | 43 | 17 | — | 39 | — |
| | SVC | 12 | 10 | — | 10 | — |
| | IVC | 28 | 12 | — | 22 | — |
| 49 | WB | 47 | 27 | 45 | — | — |
| | SVC | 13 | 9 | 24 | — | — |
| | IVC | 34 | 14 | 25 | — | — |
| 50 | WB | 61 | 34 | 18 | 44 | — |
| | SVC | 16 | 14 | 3 | 14 | — |
| | IVC | 44 | 16 | 12 | 24 | — |
| 51 | WB | 51 | 22 | — | 50 | 36 |
| | SVC | 15 | 12 | — | 18 | 14 |
| | IVC | 38 | 11 | — | 20 | 19 |
| 52 | WB | 50 | 32 | — | 39 | 27 |
| | SVC | 17 | 12 | — | 14 | 11 |
| | IVC | 31 | 13 | — | 21 | 19 |
| 56 | WB | 46 | 17 | 27 | 18 | 40 |
| | SVC | 9 | 8 | 5 | 5 | 7 |
| | IVC | 31 | 9 | 21 | 23 | 23 |
| 61 | WB | 52 | 10 | 22 | 23 | 32 |
| | SVC | 18 | 7 | 11 | 12 | 19 |
| | IVC | 34 | 8 | 10 | 20 | 19 |
| 62 | WB | 31 | 18 | 16 | 25 | 34 |
| | SVC | 7 | 13 | 8 | 9 | 15 |
| | IVC | 19 | 10 | 8 | 16 | 22 |
| 63 | WB | 28 | 19 | 19 | 26 | 26 |
| | SVC | 10 | 7 | 6 | 11 | 8 |
| | IVC | 21 | 9 | 13 | 16 | 16 |
| | Mean WB† | 45 | 22 | 24 | 33 | 33 |
| | Mean SVC‡ | 13 | 10 | 10 | 12 | 12 |
| | Mean IVC§ | 33 | 13 | 17 | 21 | 19 |
| | Mean per kg WB | 4.5 | 2.2 | 2.4 | 3.3 | 3.3 |
| | Mean per kg SVC | 1.3 | 1.0 | 1.0 | 1.2 | 1.2 |
| | Mean per kg IVC | 3.3 | 1.3 | 1.7 | 2.1 | 1.9 |

* Oxygen consumption measured in ml/min.

† Whole body of the dog (combined caval flow).

‡ Area drained by the superior vena cava.

§ Area drained by the inferior vena cava.

TABLE III
PER CENT CHANGE IN REGIONAL OXYGEN
CONSUMPTION OCCURRING WITHIN 7
MINUTES AFTER GIVING ARFONAD

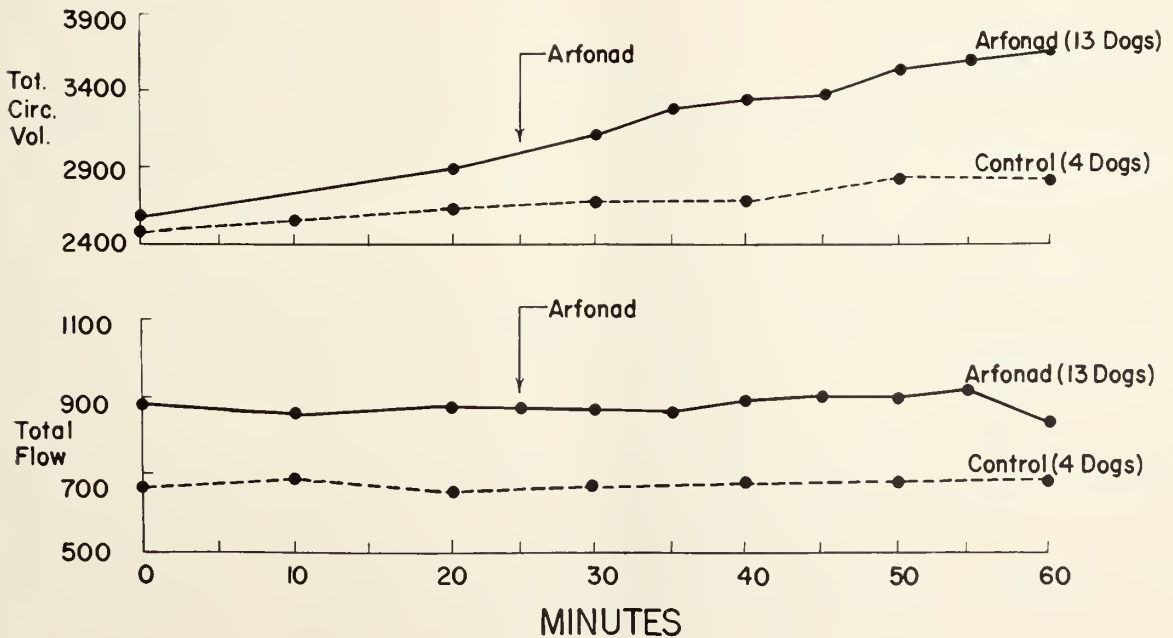
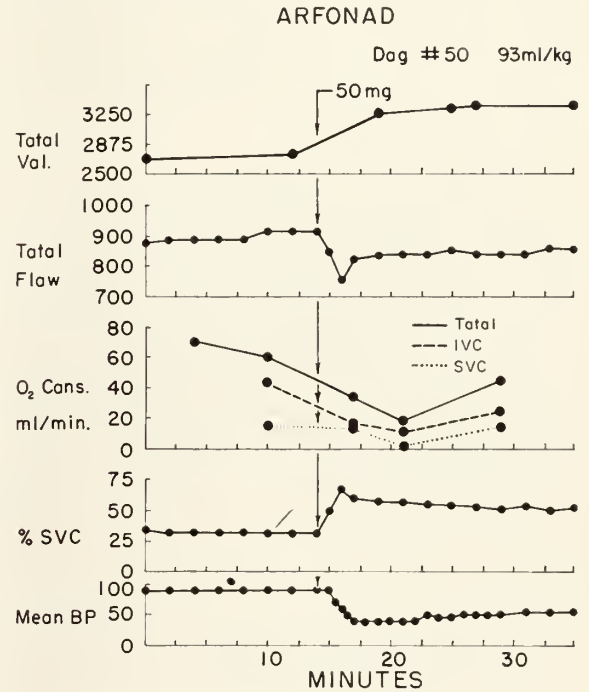
| Exp. No. | % Change Whole Body | % Change Area Drained by SVC | % Change Area Drained by IVC |
|-------------|------------------------|------------------------------------|------------------------------------|
| 46 | — | +12 | -43 |
| 48 | -60 | -14 | -60 |
| 49 | -42 | -34 | -57 |
| 50 | -45 | -10 | -63 |
| 51 | -58 | -19 | -72 |
| 52 | -37 | -45 | -51 |
| 56 | -64 | 0 | -72 |
| 61 | -81 | -61 | -76 |
| 62 | -42 | — | -47 |
| 63 | -32 | -30 | -57 |
| Mean | -51 | -23 | -60 |

caval flow meters were fairly constant. After this period from 25 to 90 mg. of Arfonad was administered through the oxygenator to enter the dog through the arterial cannula. Perfusion was carried out in 15 dogs. Two of these dogs were given repeated injections of Arfonad without any prominent change in the blood pressure, oxygen consumption, or other parameters, and apparently were refractory to effects of the drug. Thirteen dogs showed noticeable changes after the Arfonad was given (Tables I, II, and III) and constitute the data for this report.

In these animals the perfusion varied from 47 to 113 ml/min/kg with an average of 84 ml/min/kg.

The mean blood pressure before Arfonad ranged from 80 to 150 with an average of 100 mm. of mercury. After Arfonad there was a drop in blood pressure to levels ranging from 30 to 60 with an average of 40 mm. of mercury. In each of these animals there was a definite increase in the superior vena caval flow.

The pre-Arfonad per cent of superior caval flow ranged from 24 to 53 with a mean of 38 per cent. After Arfonad the per cent of superior caval flow ranged from 55 to 69 with a mean of 63. This rep-



resents a per cent increase in superior caval distribution ranging from 21 to 175, with the mean increase being 72 per cent (Table I).

Total venous return was calculated by adding the flow rates of the two caval rotameters. Minor variations occurred in venous return after Arfonad although no definite pattern of change was noted. In four animals (Nos. 32, 52, 62, and 63) there was a slight increase in venous return of varying duration, while in four animals (Nos. 48, 50, 51 and 61) there was a slight decrease in venous return. The remaining five animals (Nos. 31, 33, 46, 49, and 56) showed essentially no alteration in venous return. Changes, when present, were of small magnitude and never exceeded 150 ml. In each animal the measured venous return corresponded with the calibrated perfusion volume to 50 ml.

During perfusion, from 500 to 1500 ml. of blood were required to maintain the venous reservoir and oxygenator levels constant, thus compensating for the "take-up" of blood by the perfused animal, blood loss from the numerous samples, and occasional accumulation of blood in the operative area.

In ten animals oxygen consumption was measured from one to three times prior to Arfonad and at varying intervals after administering the drug (Table II). Oxygen consumption was determined for the whole body, the area drained by the superior vena

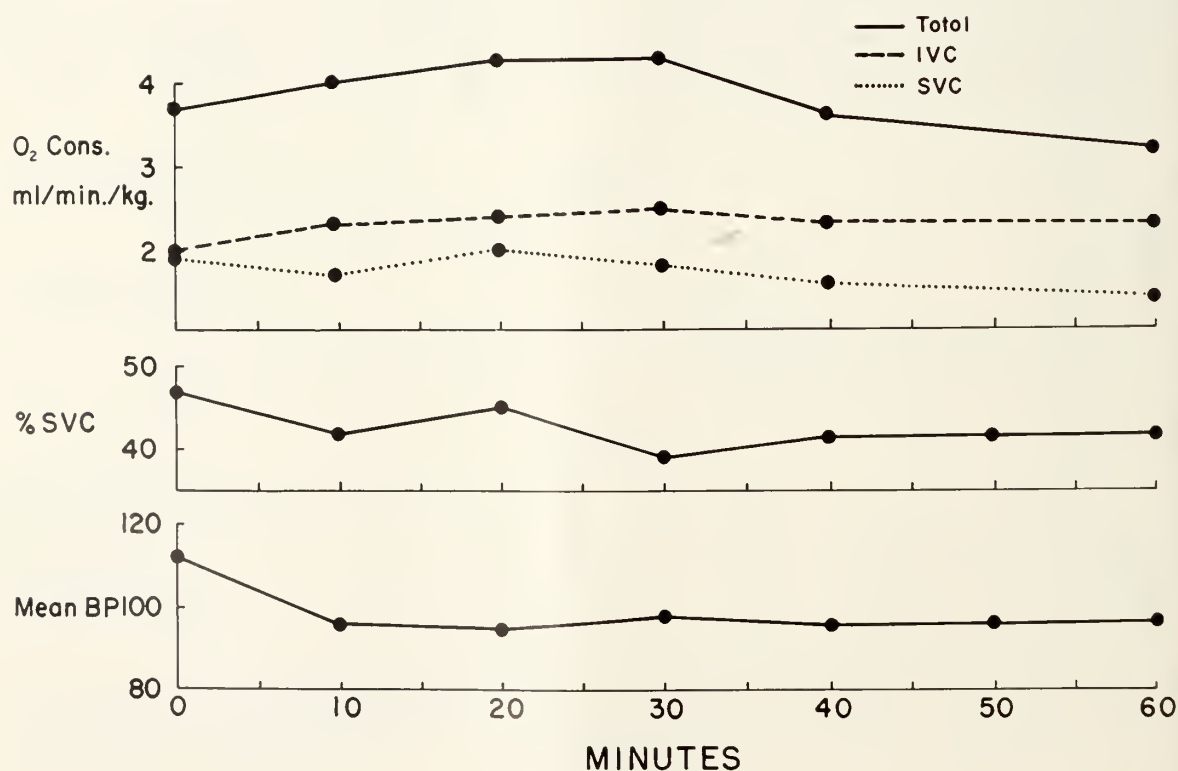
cava, and the area drained by the inferior vena cava except in No. 46 in which the whole body determination was omitted.

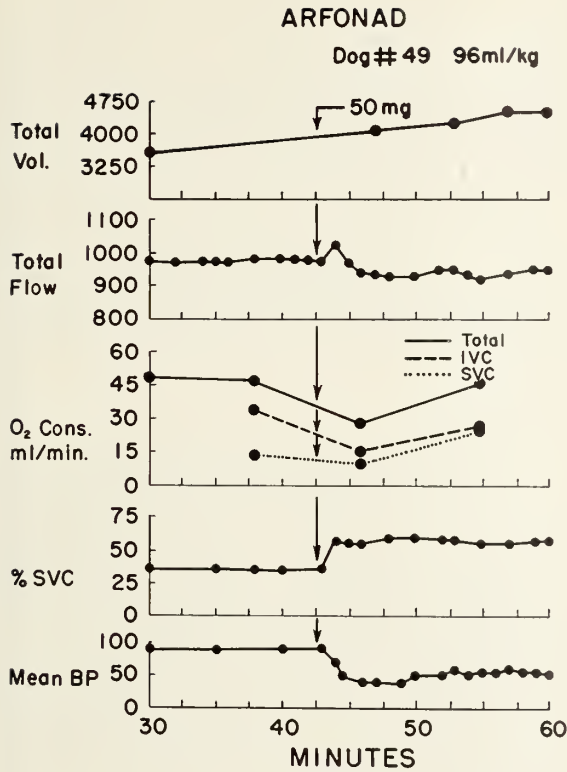
In these ten animals there was a 32 to 81 per cent drop in whole body oxygen consumption within seven minutes after Arfonad was injected, the mean decrease being 51 per cent. The region drained by the superior vena cava showed a 12 per cent increase in one dog (No. 46), no change in one dog (No. 56), and a decrease of 10 to 61 per cent in the remaining seven. The mean change in oxygen consumption over superior caval distribution was minus 23 per cent. The per cent decrease in the areas drained by the inferior vena cava within the first seven minutes after Arfonad ranged from 43 to 76 with a mean decrease of 60 per cent (Table III). The samples determined at greater intervals after the Arfonad injection (Table II) were less consistent but showed a trend toward return to the pre-Arfonad oxygen consumption levels in a variable time period. Four additional experiments were conducted in an identical manner except no Arfonad was given. In this control group the oxygen consumption remained essentially constant throughout 60 minutes of perfusion with samples being taken every 10 minutes.

Discussion

Trimethaphan camphorsulfonate (Arfonad) has

CONTROL (4 DOGS)



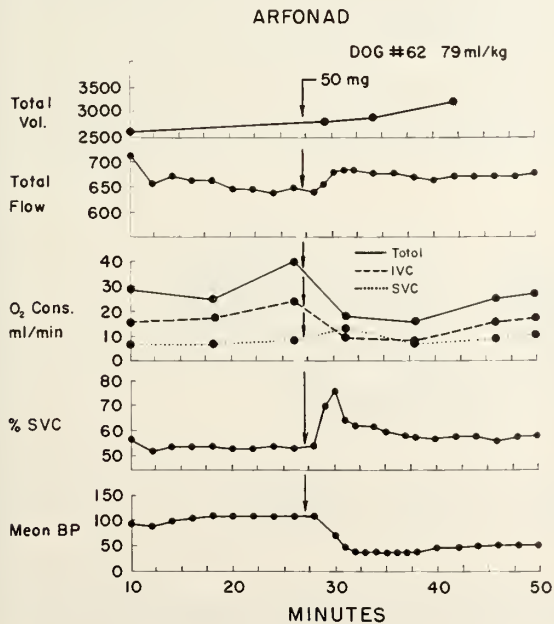
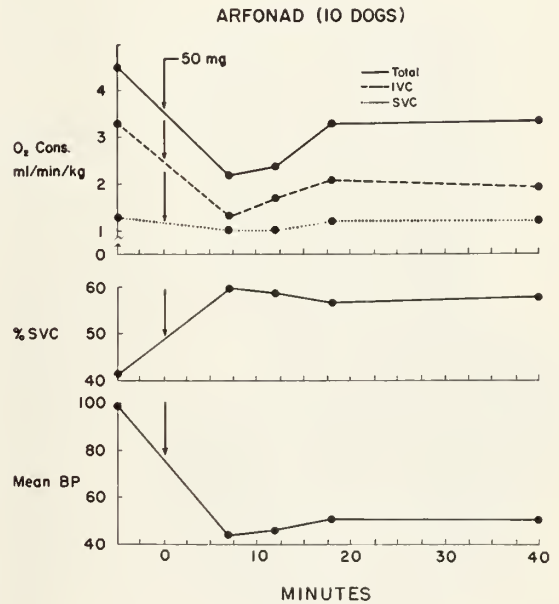


received considerable attention for use in the production of controlled hypotension during operation. Arfonad is a thiophanium derivative with ganglionic blocking activity approximately 30 times more potent than tetraethylammonium chloride. The fall in blood pressure obtained with Arfonad is found to be considerably greater than would be expected from ganglionic blockade *per se*, and there is apparently a

peripheral action in addition to the ganglionic blocking activity. McCubbin and Page showed that the dog had the same or increased vasodepressor activity to Arfonad when the paravertebral sympathetic chains were removed, when the cord was sectioned at C-6, or when ganglionic blockade with tetraethylammonium chloride or hexamethonium had been already induced.

Histamine-release due to Arfonad occurs but the above authors concluded that since Benadryl did not alter the vasodepressor activity there is probably a direct vasodilator mechanism by Arfonad not mediated by histamine.

Arfonad is a short acting and poorly absorbed agent. An average of 31 per cent has been shown to be recovered in the urine, although the fate of the



remaining 69 per cent is unknown. In 1957 Tewfik suggested that trimethaphan is a potent inhibitor of pseudocholinesterase but this has recently been discounted by Percy and Wittenstein. These authors noticed a brief period of apnea in rats after high doses which resembled that seen after the use of muscle relaxants. A toxic effect of large doses of Arfonad on monkey kidney evidenced by necrosis of the proximal convoluted tubules has recently been demonstrated.

Except for two of our dogs which showed no response to repeated injections of Arfonad (to a total of 500 mgm.), a pronounced drop in mean blood pressure (an average of 60 mm. of mercury) occurred in these perfused animals, similar to that predicted by its pharmacologic actions.

Before giving Arfonad superior caval flow constituted a mean of 38 per cent, which agrees fairly well with the figures of 31.3 per cent, 30.4 per cent,

and 34.8 per cent (value at 37°C.) previously determined in dogs. With the fall in blood pressure there was a definite redistribution of blood flow with a mean increase of 72 per cent in superior caval flow. Since the arterial flow is maintained constant by the pump and no marked change in venous return occurs the vasodilatation produced by Arfonad is proportionately greater in the area drained by the superior vena cava or arteriovenous shunts have been opened in this area. It has been shown in the intact organism that in moderate hypotension compensatory dilatation of the cerebral vessels serves to maintain cerebral blood flow. Greater reduction of blood pressure with Arfonad or other means has been shown to cause decrease in cerebral blood flow. If the cerebral flow behaves similarly in the perfused dog after Arfonad we must assume that the extracerebral area of superior caval drainage receives most of the 72 per cent increase in flow. This would seem unlikely in the absence of a shunting mechanism.

After adding Arfonad to the system a decrease in total oxygen consumption occurred within seven minutes, following which there was a gradual rise to preadministration levels. The mean decrease of 51 per cent for whole body oxygen consumption is a reflection of a mean decrease of 60 per cent in the area of inferior caval flow. The area drained by the superior vena cava showed a mean decrease of 23 per cent in oxygen consumption, but one of the ten animals showed no drop and one showed an increase.

Several authors have shown increase of cerebral arteriovenous oxygen differences following acute reduction of blood pressure with Arfonad. This seems to indicate increased efficiency in oxygen utilization until cerebral vasodilatation allows the cerebral blood flow to return toward normal. It has been shown that cerebral oxygen consumption in the intact organism can be maintained despite a decrease in cerebral blood flow. If such cerebral oxygen tenacity also occurs in the perfused animal, then any decrease in

oxygen consumption of superior caval distribution in spite of the greatly increased flow already demonstrated would be on extracerebral origin. This would strongly suggest some sort of a preferential shunting mechanism, substantiated by a decrease in the arteriovenous difference between the arterial and superior caval samples. However, if there is enough decrease in cerebral blood flow the oxygen consumption will suffer. The decreased oxygen consumption in the area drained by the inferior vena cava could well be a reflection of the decrease in flow to the region, but arteriovenous shunts are also possible to explain these data.

Conclusions

1. The effect of trimethaphan camphorsulfonate (Arfonad) on the relative distribution of superior and inferior vena caval flow, oxygen consumption, and total venous return was measured in 13 dogs undergoing extracorporeal perfusion. A preparation is described in which flow meters were inserted for measurement of flow through the superior and inferior vena cava.

2. The average superior caval flow increased from 38 per cent to 63 per cent of the total flow with a 72 mean per cent increase of superior caval flow after giving Arfonad.

3. A drop in oxygen consumption occurred within 7 minutes after giving Arfonad. The whole body showed a mean decrease of 51 per cent, the area drained by the superior vena cava a mean decrease of 23 per cent, and the area of inferior caval return a mean decrease of 60 per cent. This was followed by the gradual return to preadministration levels of oxygen consumption.

4. Some aspects of Arfonad pharmacology are briefly discussed and the possible significance of the above changes indicated.

Editor's Note: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

KANSAS CITY

103rd Annual Convention

April 30, May 1, 2, 1962

The President's Message

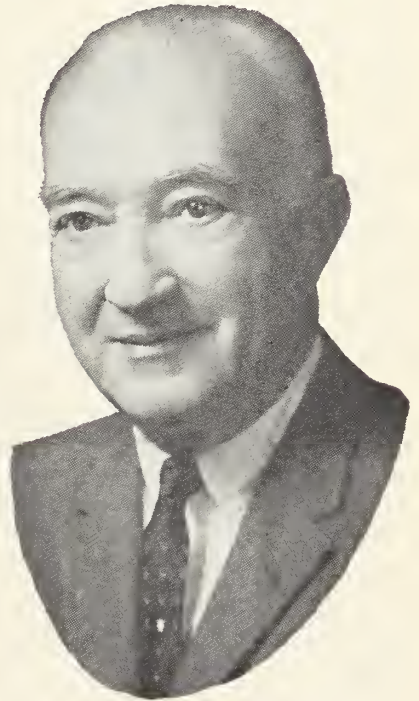
DEAR DOCTOR:

This is the time of year when we look back and see what has been accomplished and look ahead to see what will require our attention in the future.

The Kansas Medical Society can look with pride on its many accomplishments of the past year. All committees have been extremely active and have had to settle many important questions.

The future will find the Kansas Medical Society meeting its problems head on. From time to time I will try to cover many of these problems on the President's page for the general membership should be kept informed as accurately as possible regarding important questions. The more information that can be disseminated, the better the cooperation.

At this time since Christmas is just around the corner, may I wish the membership and the staff a Very Merry Christmas and a Happy New Year and may God guide us in our future efforts.



Yours very truly,

President

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297 or 298

Recent Acquisitions

- American Cancer Society. Proceedings of the Fourth National Cancer Conference. Lippincott. 1961.
- Berens, C. An atlas of ophthalmic surgery. Lippincott. 1961.
- Ciba Foundation. Ciba Foundation Study Group 8. Problems of pulmonary circulation. Little, Brown. 1961.
- Ciba Foundation. Somatic stability in the newly born. Little, Brown. 1961.
- Coates, J. B. Internal medicine in World War II. Gov. Print. Office. 1961.
- Cumley, C. Year Book of cancer. 1960/61.
- DePalma. Clinical orthopaedics. Volume 20. Lippincott. 1961.
- Duke-Elder, Sir Stewart. System of ophthalmology. Volume 1. The eye in evolution. C. V. Mosby. 1958.
- Freidson, E. Patient's views of medical practice. Russell Sage Found. 1961.
- Greenhill, J. P. Yearbook of obstetrics & gynecology. Yr. Bk. Pub. 1961.
- Longmare, T. A. Medical photography. Focal Press. 1960.
- Lowman, C. L. Abdominal fascial transplants. Edwards Bros. 1961.
- Mills, M. Inflammation & diseases of connective tissue. Saunders. 1961.
- Von Bekesey. Experiments in hearing. McGraw-Hill. 1960.

**USE YOUR MEDICAL
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Zollinger, R. M. Atlas of surgical operations. McMillan. 1961.

Monographs Available in the Library

DIET AND NUTRITION

- Ohio Department of Health. Ohio diet manual. 1958.
- Rice, T. B. Low-sodium diet. Lea & Febiger. 1951.
- Sandler, B. P. Diet prevents polio. Lee Foundation for Nutritional Research. 1951.
- Seymour, F. I. Rice, dietary controls, and blood pressure. Froben Press. 1951.
- Stead, E. S. Low-fat cookery. McGraw-Hill. 1956.
- Stepp, W. O. The vitamins and their clinical applications. Vitamin Products Co. 1938.
- Turner, Dorothea. Handbook of diet therapy. Univ. of Chicago Press. 1959.

**Books and periodicals will be sent
anywhere in the state. You pay only the
postage, four cents for the first pound
and one cent for each additional pound.**

- Bogert, L. Dietary uses of the banana in health and disease; a review of scientific literature. United Fruit Co. 1942.
- U. S. Veterans Adm. Diet guide for applied nutrition in medical treatment. Gov. Print. Off. 1954.
- Vaughn, M. Good food without salt. Crowell. 1951.
- Wohl, M. G. Modern nutrition in health and disease; dietotherapy. Lea & Febiger. 1955.
- Am. Public Health Assn. Standard methods for the examination of water, sewage, and industrial wastes. 1955.

HOSPITAL LITERATURE

- Am. Hospital Assn. Principles of disaster planning for hospitals. Am. Hosp. Assn. 1956.
- Am. Hospital Assn. Readings in disaster planning for hospitals. Am. Hosp. Assn. 1956.
- Bachmeyer, A. C. Hospital trends and developments. Commonwealth Fund. 1948.
- Bailey, Norman D. Hospital personnel administration. Physicians' Record Co. 1959.



Editorial COMMENT

EDITOR'S NOTE: *The following statement on the subject of health care for the aged was prepared for use by the National Federation of Independent Business, Inc. The clarity of this expression prompted the editors to reprint it in The JOURNAL.*

Crocodile tears are being shed in Washington and elsewhere over the plight of the old folks, and political leaders agree that a little more socialized medicine via the social security route, is a must.

The unions have been shouting for it; the drug investigation fed it ammunition; hospital officials think it will be another bonanza; and the worst critics of the medical profession see it as "a chance to get even with the doctor and the industry" probably responsible for their being alive.

Life expectancy in the United States is up from 47 years in 1900 to 70 in 1959.

Cost of pneumonia in 1940, 3 months' wages of average man for hospital bill. In 1959, 5 hours' wages for medicine and a few days in bed at home.

Polio 85 per cent decrease over 1940.

Diphtheria, 16,000 persons stricken in 1946, and fewer than 1,000 in 1959.

Fifty thousand deaths from tuberculosis in 1945, a fourth as many in 1959.

Rickets, scurvy, scarlet fever, infant diarrhea—almost gone.

Seven thousand children died from whooping cough in 1940, and 310 in 1959.

Similar progress shows up in hundreds of other diseases but only the bad side is given by the advocates of socialized medicine.

Socialized medicine contains a potential for graft, corruption, waste, and disillusionment of incredible proportions. It destroys the personal relationship between the patient and the practitioner. It ushers in a tax-financed bureaucracy that is gaged to human suffering, and once fastened upon a nation, its hold is only loosened by its own collapse.

Consider that social security taxes now take more

Free Medical Care for the Aged

from some people than income taxes. That old age and other OASI bills total \$16 billion annually, and that every year new proposals are made to enlarge the social security program.

Nothing is ever said about the youth of the Nation who are taxed all through their lives to maintain a high-cost Government care and pension program more expensive than anything of a private nature, and well on its way to a point where it could easily become an intolerable burden.

The debate on health care for the aged will become, we think, one of the most crucial the Nation has witnessed for a number of years. For at stake will not be simply the question of whether some 10 or 15 million aged and aging Americans are to get public assistance in meeting health problems but whether the Nation's medical services—the finest in the world—are to remain free or whether they are to fall under the domination and dictation of the Federal Government.

No one denies that thousands of aged Americans are not receiving the medical and hospital care they want and need. But neither are thousands of American babies, thousands of young and middle-aged Americans. If free medical care for those over 65 is right and proper, free medical care for those under 65 is equally right and proper. And if Congress is pressured into granting one today, it is folly to suppose it will resist the pressure to grant the other tomorrow.

The other point is that medical care for the aged is simply a first step, an opening wedge. The ultimate goal is the complete federalization of the Nation's medical and hospital services—a measure the welfare-statists have been advocating since the days of the Wagner-Murray-Dingell bill.

This is our first objection to the proposed program for medical care for the aged: It would simply be the first step toward socialized medicine for all Americans.

Our second objection is that what the Federal Government pays for it eventually controls. The advocates of medical care for the aged, of course, deny that this is the case. But there is an interminably long list of examples to prove that it is. Wherever the Federal Government provides the funds—for municipal airports, for housing and slum clearance, for education and research grants—it eventually attaches conditions and sets standards. It could be argued that it would be wrong for it to do otherwise. But the fact remains that Federal subsidization means Federal control.

Our third objection stems from financial precariousness of the social security system itself.

In the first 25 years of its existence, social security took in some \$70 billion through compulsory taxes on the earnings of American workers. During the same period, it paid out \$50 billion in benefits. At the end of 25 years, it had \$20 billion left in assets and, at the present rate of benefits, \$360 billion in obligations. For every dollar social security now has in the till, in other words, it must eventually pay out \$18 in benefits.

This means, among other things, that the Nation's younger workers, who generally need every penny to meet present obligations, must be taxed for the rest of their working lives to pay for free medical care for aged and aging Americans, including millions able and willing to care for themselves.

This leads to our fourth objection to the medical care plan: It is a compulsory program for which all Americans covered by social security must pay, regardless of whether they want or need the benefits provided.

There has been such a powerful propaganda campaign in behalf of medical care for the aged within the last few years that opposing it is very much like opposing motherhood, patriotism, and virtue itself.

Nothing, to be sure, touches the hearts of the American people more forcefully than the picture of aged men and women who find themselves, after a lifetime of toil, incapable of providing the medical care and hospitalization they need.

The plight of these aged Americans is an evil that the Nation, the States, and the communities of America must work to overcome, just as they must work to overcome juvenile crime, ignorance, and poverty in all its other forms.

To maintain, however, that the only answer, or even the best answer, is to force all Americans into a compulsory system of Federal medical insurance is to advocate a system that would inevitably become a greater evil than the one it is designed to remedy.

EDWARD WIMMER, Cincinnati, Ohio
Vice President, National Federation of
Independent Business, Inc.

Society Activities

Some day the Kansas Medical Society should give its members a story of its varied activities. Not only would such information aid the individual physician in understanding what his state association does with his dues but it would increase the effectiveness of Society effort through individual cooperation.

The member should know activities of committees. For example, that the Emergency Medical Care Committee is preparing a blueprint for health care in the case of disaster which would involve every physician in the Society, its office staff, every hospital and a vast army of lay volunteers.

The Society should learn that the Endowment Committee is furnishing an appeal for contributions for the Harold M. Glover fund through A.M.E.F. and that all these contributions will go to the University of Kansas School of Medicine for student loans. The Society should learn that some money is already available for this purpose and that all funds are in constant use on a rotating basis as the loans are repaid.

The Society should be told the Fee Schedule Committee is working on an entirely new Relative Value Scale which came into being as a result of effort by the National Blue Shield Plans office.

The Hospital Committee will shortly give every small hospital in the state an outline for standards of professional activities. The Committee on Pathology is again working on revisions of the Coroner's Law to be presented to the 1963 Legislative session.

Everyone in the Society should have information about the Public Relations Conference held early this fall and cooperate with their local county society in the organization of speakers bureaus and other public relations efforts. The Relations with the Bar Committee is being reorganized in an attempt to create a better working agreement with attorneys.

And, yet, these are only a fraction of the committee effort conducted by the Society. In addition to the above, there are general state-wide projects as, for example, the Society participation in a newly formed organization known as the Kansas Health Facilities Information Service, Inc., which is a state-wide hospital planning council.

Also on a state-wide basis is an effort to improve the welfare program, to start Kansas on the Kerr-Mills program, to provide the state with standards for safe driving and many other things.

The Society is active, but unless such information can be given to its membership, only those directly affected by each program will participate in the effort. In such projects as Health Care for the Aged and many others, the cooperation of each member is needed. Unless the individual physician knows of

(Continued on page 528)



Book REVIEWS

A MANUAL OF CUTANEOUS MEDICINE, Pillsbury, Shelley, and Kligman. W. B. Saunders Co., Philadelphia, 1961, 430 pages, \$9.50.

This is the second effort by these authors; their first, *Dermatology* (1956), has been well received. The current volume is much smaller in bulk than the first, but in some ways contains more material, much of it condensed. This is attended by the usual hazards of condensation, i.e., what is important or, rather, what can be left out. As a rule those conditions most frequently seen in practice are given the most space, but not always. The guiding principle in the writing of the book seems to have been to call to the reader's attention those changes in the skin which may reflect systemic disease. This has been admirably accomplished.—C.M.L.

ESSENTIAL HYPERTENSION: an International Symposium. Edited by K. D. Bock and P. T. Gottier. Published by Springer-Verlag, Berlin, Gottingen and Heidelberg, 1960. 392 pp. Price not given.

This volume contains a number of addresses and the accompanying discussion at a symposium on the title subject which was held in Bern, Switzerland, in June of 1960. Almost all facets of hypertensive cardiovascular disease are covered to some extent though there is more emphasis over-all on experimental work and laboratory studies. The contributors are all leading men in their field and include representatives from many of the major medical centers in the United States, Great Britain and Western European countries. This broad representation produced a number of conflicting opinions and some interesting discussion.

The first portion of the book is devoted principally to studies as to the etiology and pathological physiology of hypertension with a good deal of emphasis on the role of salt and the adrenal cortex in this disease. No dramatic conclusions were reached, as might be expected, and for practical purposes, essential hypertension remains "essential." It was a little disappoint-

ing that no mention of possible psychophysiologic aspects of this disease was made. The second portion of the book is devoted to therapeutic considerations including consideration of the natural course of hypertensive disease and excellent discussions of the pharmacology and clinical use of the newer hypotensive drugs. This latter portion might be of more interest to the practicing physician though most of the discussion is on a theoretical level.

The volume is very well printed and well bound with a number of graphs and charts which are adequately reproduced. The editors have done an excellent job in translating and arranging the material and despite the diversity of material, the book makes a pretty coherent whole. This book is brought out by one of the largest producers of hypotensive drugs and includes a number of members of their research department as speakers but is quite objective. Though not a textbook or primarily designed for the practitioner, it should prove worthwhile reading to any physician interested in the problem of hypertension.—J.E.S.

ADRENERGIC MECHANISMS, Ciba Foundation Symposium. Edited by Wolstenholme and O'Connor. Little, Brown and Co., Boston, 1960, 632 pages, \$12.50.

The "Ciba Foundation Symposium" series now includes over two dozen titles, and has acquired a reputation for being erudite and scholarly. The present volume records a symposium held in Britain under joint sponsorship with the British Pharmacological Society, the Physiological Society, the Biochemical Society, and the Royal Society of Medicine on March 28 and 29, 1960. There were eight general sessions. The first seven dealt with the formation and inactivation of adrenergic transmitters, the storage of catechol amines, the adrenergic mechanisms in man, actions of epinephrine and norepinephrine on the effector cell, mechanism of action of other sympathomimetic amines, and central adrenergic mechanisms. The eighth and final session was a "general" one. From three to nine papers were presented at each of

the sessions, and a good many of the papers were followed by discussions.

Any physician will almost certainly find at least one paper of high interest to him in this remarkable collection because, whereas the majority of the papers are at a highly theoretical level, the practical importance to the clinician is never ignored. There are, for example, several papers dealing with such relatively new antihypertensive agents as bretylium and guanethidine. There are also papers which deal with the currently popular monoamine oxidase inhibitors, and the relationship of these drugs to "chemopsychotherapy" is considered in some detail.

The printing and binding are quite acceptable and the figures and tables are above average. The book is complemented by an author index and a subject index, both of which appear to be adequate.—J.D.R.

Editorial Comment

(Continued from page 526)

this effort, he cannot perform the services vital to the Society. Therefore, some plan must be achieved whereby information of this type can be disseminated to the membership.

Cost of Health Care

Public misunderstanding over the cost of health care represents a constant problem for the practicing physician. It is a well-known fact that most persons attribute their total health care cost to physicians' services even though, according to a recent tabulation published in the *A.M.A. News*, the physician receives twenty-five cents of the health care dollar.

Another report of the Health Insurance Institute in New York gives some interesting statistics on hospital costs as of October 1, 1960. In a survey of 4,400 hospitals, room charges were tabulated. The figures were recorded according to geographical districts in which the United States was divided into nine regions.

It is not entirely surprising that the Pacific region gave an average of the highest cost, listing private room facilities at \$27.40. The West South Central area averaged private room cost at \$14.90 per day. The West North Central region, including the State of Kansas, averaged \$18.40 for daily private room care.

As can well be expected, the cost in rural areas in each region was less than charges made by hospitals in the cities. The highest cost recorded in this survey for a private room was in a city of the Pacific region at \$32.11. The lowest cost was in a rural area of the East South Central region at \$9.60. The range in the

area in which Kansas is included listed a high of \$23.80 and a low of \$11.20.

In their comment, they called attention to the fact that hospital costs vary as much as 80 per cent between the high and the low. While this report does not contain any surprising statistics, the figures represent information a physician might find of some value under certain circumstances whenever the cost of present-day illness is discussed. It should constantly be borne in mind that hospital costs reflect to a large extent the increased expense of wages and that this figure will continue to rise.

NEW GROUP BENEFITS

The Committee on Medical Economics is happy to announce the approval of a *new* and *broad*er Group Accidental Death, Dismemberment and Permanent Total Disability Insurance Program. This program is underwritten by the Insurance Company of North America and administered by Ed Gund with R. B. Jones and Sons Inc., Kansas City, Missouri.

This group program, available to members and their wives as well as their employees, has many outstanding advantages—

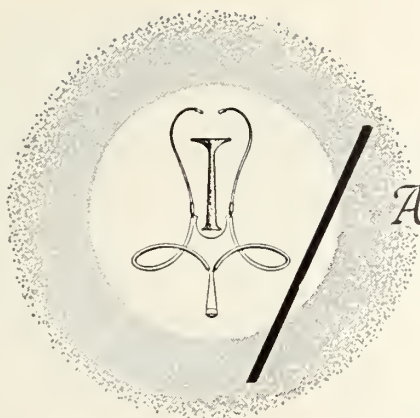
1. no age limit
2. coverage issued to all applicants regardless of past medical history
3. 24 hour coverage
4. annual rate \$1.00 per \$1,000
5. covers any accident except war, suicide, piloting or acting as a crew member of an aircraft or while in military service.

All members and employees may apply for coverage in amounts from \$25,000 to \$150,000. (Age 75 and over the maximum limit is \$50,000.) Wives of members may apply for coverage in amounts from \$12,500 to \$50,000. An example of the annual premiums would be:

| <i>Amount of Coverage</i> | <i>Annual Premiums</i> |
|---------------------------|------------------------|
| \$ 25,000 | \$ 25.00 |
| 50,000 | 50.00 |
| 100,000 | 100.00 |
| 150,000 | 150.00 |

This new plan which became effective November 1, 1961 has had tremendous response from Medical Society members, wives, and employees. If you have not taken advantage of this coverage, you may still do so by sending your completed application to the Group Administrator. Coverage will be effective the first of the month after the application is received.

For additional information write The Kansas Medical Society office or Ed Gund, R. B. Jones and Sons Inc., 301 West 11th Street, Kansas City, Missouri.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The Tenth Postgraduate Course, Diabetes in Review: Clinical Conference, 1962, sponsored by the American Diabetes Association will be held January 17, 18, and 19 in Detroit and Ann Arbor, Michigan. The sessions of the first and third days will be at The Statler Hotel in Detroit. The second day's lectures are scheduled at the University of Michigan, Ann Arbor. For further information and registration forms, contact The American Diabetes Association, 1 East 45th Street, New York 17, New York.

Written examinations (Part I) of the American Board of Obstetrics and Gynecology will be held in various cities of the United States, Canada, and military centers outside the Continental United States on Friday, January 5, 1962. Applicants and candidates for examination in 1963 should note that the deadline for making application is advanced to July 1, 1962. Current Bulletins outlining present requirements may be secured by writing the executive secretary, Robert L. Faulkner, M.D., American Board of Obstetrics and Gynecology, 2105 Adelbert Road, Cleveland, Ohio.

The 26th Annual Session of the International Medical Assembly of Southwest Texas will be held in San Antonio, Texas, January 29-31, 1962, at the Granada Hotel. Those interested in obtaining further information or registering may write Dr. Lawrence B. Reppert, President, or Mr. S. E. Cockrell, Jr., Executive Secretary, 202 West French Place, San Antonio 12, Texas.

The first of four 1962 sectional meetings of the American College of Surgeons will be held in Los Angeles, January 29 through February 1. Surgeons,

graduate nurses, and all related medical personnel are invited to attend. Other sectional meetings during 1962 will be held in Detroit, March 5-7; Memphis, March 26-28; and Washington, D. C., April 16-18. Write The American College of Surgeons, 40 East Erie Street, Chicago 11, Illinois, for complete information.

The University of Colorado School of Medicine announces its annual General Practice Review to be held January 7-13, 1962. This is an annual postgraduate course designed especially for the general practitioner. For detailed program and further information, write to: The Office of Postgraduate Medical Education, The University of Colorado, School of Medicine, 4200 East Ninth Avenue, Denver 20, Colorado.

The 103rd Annual Meeting of the Kansas Medical Society will be April 30, May 1, 2, 1962, at the Town House Hotel, Kansas City, Kansas.

The Third Annual Meeting of the Kansas Association of Blood Banks will be held December 1 and 2, 1961, in Wichita, Kansas. A Workshop for new advancements in Blood Banking technic will be held in conjunction with the University of Wichita for twenty participants who are currently working in the field of Blood Banking. A Seminar on unusual problems in Blood Banking will be held at the Sedgwick County Medical Society Auditorium on the morning of December 1. A Scientific Program will be held on December 2, also at the Sedgwick County Medical Society Auditorium. The Society (KABB) is pleased to announce that John G. Gibson, II,

(Continued on page 532)



JOHN J. TRETBAR, M.D.

Dr. John J. Tretbar, 76, died at his home in Stafford on October 26.

Dr. Tretbar was born June 5, 1885. He graduated from Kansas University School of Medicine in 1910 and began his practice in Hudson, Kansas. In 1916 he moved to Stafford and practiced there until his retirement in 1941.

He was a member of the Methodist church and active in church affairs.

Survivors include his wife, Gladys, two sons, and three grandchildren.

HARRY J. DAVIS, M.D.

Dr. Harry J. Davis, 63, Topeka, died at his home on October 21.

Born in Topeka, Dr. Davis practiced there from 1925 until his retirement in 1956. He was graduated from Topeka High School, studied at Washburn University and Washington University in St. Louis. He received his degree in medicine from the Washington University School of Medicine in 1924.

Dr. Davis was a member of the Countryside Methodist Church. He was also a member of the Kappa Sigma fraternity, Nu Sigma Nu medical fraternity, and was elected to Alpha Omega Alpha, honorary medical organization.

Besides his wife, Mildred, he is survived by his son and three grandchildren.

ANDREW L. BERGGREN, M.D.

Dr. Andrew L. Berggren, 81, Chetopa, died October 26 in the Labette County Medical Center, Parsons.

He was born November 28, 1879, at Kellogg, Iowa. He graduated from Creighton Medical College at Omaha, Nebraska, in 1906, and interned at St. Joseph's Hospital there.

Dr. Berggren was a member of the Labette County Medical Society and the county medical center staff. He belonged to the Sacred Heart Catholic Church, and the Chetopa Chamber of Commerce.

Survivors include his wife, Marie, a son and four daughters.

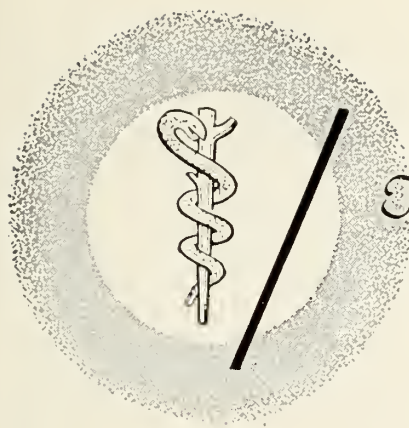
EDWIN P. DEAL, M.D.

Dr. Edwin P. Deal, 61, Hutchinson, died at his home on November 2.

He was born July 11, 1900 at Winfield, Iowa and graduated from the University of Nebraska in 1926. Dr. Deal served as county physician of Reno county since 1958.

Dr. Deal was a member of the Dighton Christian Church, the Masonic Lodge, the Eastern Star, and Shrine.

He is survived by his wife, Florence, two sons, one stepson, and four stepdaughters.



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

REMEDY FOR QUACKS

It is heartening to note the Department of Health, Education and Welfare and the American Medical Association, which do not always see eye to eye on some questions, have joined forces to stamp out quackery in medicine. If this effort is successful the American people will be saved hundreds of millions of dollars a year which they now spend on the modern equivalent of snake oil. They also will be spared much needless suffering and even death.

The latter is no exaggeration. Many a victim of disease, swayed by false claims, discovers too late they should have gone to a reputable physician.

The quack offers more than nostrums or gadgets to cure disease. He also has just the thing to trim off pounds without dieting or to make a man young again. The modern quack, moreover, may come in the guise of a fine-sounding corporation. Sometimes the claims made are hard to resist. The best way to avoid being taken in by phony remedies is to depend on a known and respected medical doctor for medical advice.—*Independence Daily Reporter*, November 1, 1961.

WORTH A CHANCE

Medical science constantly is adding new drugs on the market.

One of the latest ones is mebutamate, developed by the same man who came up with the tranquilizer, Miltown, back in 1955.

It was found that Miltown, in addition to soothing emotions, also lowered some patients' blood pressure. However, it didn't do this consistently nor drastically enough to be of any use as a specific weapon against high blood pressure.

By alternating the chemical structure, Miltown's originator developed mebutamate. In tests since 1958,

this newer drug returned blood pressure to normal about 85 per cent of the time on about 1,800 hypertension patients.

But doctors will not really know how effective or how free mebutamate is of side effects until it has been in general use for a while. Does this mean the general public will be a guinea pig for the new drug?

In a sense we will be. But no more so than in many of the other wonder drugs and tranquilizers to hit the nation's drug market. We are protected to some degree by our physicians, since mebutamate can be obtained only by prescription.

Often some side effects in a drug will not show up in limited testing, but will after it is put into general use.

We take a calculated risk, with the heavy odds in our favor, when we use the new drugs. But the risk is worth taking.

Life is worth taking chances for its improvement.—*Garden City Telegram*, October 17, 1961.

TIME TO QUASH QUACKS

Last week marked the beginning of an important and needed campaign against quacks. The American Medical Association and Food and Drug Administration met jointly for two days and discussed methods and means of putting medical confidence men out of business.

In the words of Dr. Leonard W. Larson, President of the A.M.A., "We want to reinvigorate the agencies which ferret out quacks by providing them with more money and larger staffs, especially at the state level, and, above all, to show the patient how to identify a quack."

What is all the furor about? Simply this, that the quacks did not die with the horse and buggy but remain to leech millions of dollars annually from the

American public. In fact, the Arthritis and Rheumatism Foundation estimates that \$252 million a year is spent on bogus cures for those diseases alone.

Little did Edison imagine that some charlatan would eventually cover the light bulb with an aluminum helmet and advertise it as a cure for baldness. However, the quacks are quick to produce gimmicks which they assert are based on the latest findings in electronic and nuclear physical research.

For example, until recently, if the patient felt a bit below par he could first try sitting in a so-called uranium mine—after he paid three dollars an hour. If that didn't work and his hydrogen atoms were rebelling and compressing he could purchase a cotton-stuffed gadget that would stretch them. Alas, if still suffering, he could buy a tape-recorder that would play musical squeaks and poings, and was offered as a cure of diseases "of the head, lungs, heart, stomach, spine, ovaries, eyes, sinuses, appendix, gall bladder, spleen and prostate!"

What quacks need is an education, and as one official put it, "There is nothing so educational as a stretch in jail." There is presently a strong movement to strengthen the fines and jail sentences against the profiteers on disease and suffering.

Dr. Larson makes the following suggestions for the individual to follow as a safeguard against quacks:

"1. He can learn the signs of quackery, so that no charlatan can fool him.

"2. He can hold on to his money until he has investigated the scientific background and the claims of all medical offers.

"3. When in doubt he can write for information to: the American Medical Association, the Food and Drug Administration, the Post Office Department, the Federal Trade Commission, his state or local health department, his state or county medical society, or his family doctor.

"4. He can cooperate with enforcement officials by furnishing information and by being willing to testify when he has been cheated.

"Only when every patient learns to look behind glittering promises and phony facades will there be an end to the crime that takes your money and your life."
—C.C.—*Emporia Gazette*, October 19, 1961.

WE NEVER LEARN

From England comes word that 600 doctors each year are migrating abroad, where they can practice medicine without the bureaucracy of the National Health Service.

When socialized medicine was imposed in Britain, nobody anticipated that. Nor did they anticipate that pre-medical students, who wanted to stay at home, would switch in large numbers to the study of veterinary medicine.

The results: a shortage of doctors and a lower grade of health care.

From Russia comes the admission that state economic planning has resulted in prodigious waste. In some parts of Khrushchevland huge factories stand completed, waiting for machinery that nobody made. Elsewhere, other sorts of machinery stand in sheds, crated and wrapped, because nobody built the factories to house it.

From Washington comes word that President Kennedy is dissatisfied with our own Economic Plan No. 1, the farm program. The administration's program, which was to have reduced surpluses in feed grains and reduce costs to the taxpayers, has cut surpluses almost none and raised costs. The President is reported to be considering "tighter controls" to remedy this mess.

Meanwhile, many in this nation advocate the first steps toward socializing our own medical care, which the British experience should show us will endanger the high standards of care we now have.

And through the depressed areas act and its tax plans the administration seeks larger government control over industry. (Our government's own enterprises lose many millions of the taxpayers' dollars each year.)

Here and abroad, the lessons point the same moral. Governments plan, spend and coerce, but somehow the controls never achieve the results expected of them. Yet, just watch. The new congressional session will be busy with plans and schemes for controls and government take-overs, conforming in concept and detail with the ones now in being—and not working out right.—*Fort Scott Tribune*, November 6, 1961.

Announcements

(Continued from page 529)

Harvard Medical School, will discuss various aspects of component therapy as it applies to advancements in transfusion therapy. Other guest speakers include Doctor Marian Rymer, Southwest Blood Banks; and Sloan Wilson, M.D., Professor of Hematology, Department of Medicine, University of Kansas Medical Center, Kansas City, Kansas. All physicians interested in the full details of the program are asked to please contact either Leo P. Cawley, M.D., Associate Director of Laboratories, Wesley Hospital, Wichita, Kansas; or Russell J. Eilers, M.D., Director of Laboratories, University of Kansas Medical Center, Kansas City 12, Kansas.

Wives can be trained to tolerate their husband's smoking in bed. That is the surest sign of a happy and successful marriage.—*Lin Yutang*



Personalities—IN KANSAS MEDICINE

Dr. C. D. Townes, Jr., Perry, was recently drafted by the Army for a two-year tour of duty.

Drs. John B. Jarrott, Hutchinson; **H. O. Anderson**, and **John F. Lance**, both of Wichita, conducted a diagnostic clinic for crippled children of the Ford County area in November. The clinic was held at Dodge City.

Dr. Edmond de St. Felix, Larned, has been certified as a diplomate by the American Board of Psychiatry and Neurology.

Dr. George S. Hopkins, Topeka, has resigned as chief surgeon at the Santa Fe Hospital and will move to Huntington Park, California, to enter private practice.

Dr. John White, Parsons, has been appointed health officer for Labette County.

Drs. Leon Bauman and **Rosemary Harvey**, Wichita, attended the American Public Health Association annual meeting at Detroit in November.

Among the new officers elected by the Kansas Division of the American Cancer Society at the annual meeting in Wichita were: **Dr. A. M. Cherner**, Hays, who will serve as president, and **Dr. H. M. Wiley**, Garden City, second vice president.

Dr. J. Paul Schweinfurth, Wichita, is now associated with the Wichita Clinic, Department of Neurological Surgery.

Dr. Robert H. Riedel, Topeka, was appointed executive secretary of the Kansas State Board of Health in October.

Dr. H. V. Bair, Parsons, was named president-elect of the six-state south-central region of the American Association of Mental Deficiency at the Kansas City convention held in November. Dr. Bair is superintendent and medical director at the Parsons State Hospital and Training Center.

Dr. W. Graham Calkins recently left his private practice of medicine in Manhattan to become assistant professor of medicine at the Kansas University Medical Center.

Dr. R. L. Meadows, Topeka, spoke before the Riley County Association for Mental Health at Manhattan in November. Dr. Meadows is assistant director of the Division of Institutional Management.

Dr. Evan R. Williams, Dodge City, was speaker at a service workshop for unit service volunteers of the American Cancer Society groups of Southwest Kansas. The meeting was held in November at Dodge City.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Leonard Hirsch, M.D.
1001 N. Minneapolis
Wichita, Kansas

Leonard A. O'Donnell, Jr., M.D.
1928 E. Kellogg
Wichita 11, Kansas

Interprofessional Code of Kansas For Attorneys and Physicians

Attention is again called to this code which is in effect as an agreement between the Bar Association and the Kansas Medical Society. It was adopted by the House of Delegates of the Kansas Bar Association and by the House of Delegates of the Kansas Medical Society in May 1958, and is printed again in THE JOURNAL at the request of the Committee on Relations with the Bar Association.

A. Preamble

Acknowledging that substantial part of the practice of law and medicine is concerned with the problems of persons who are in need of the combined services of a lawyer and doctor; that the public interest and individual problems in these circumstances are best served only as a result of cooperative efforts of all concerned; that members of both the legal and medical professions share an obligation to the individual and to society, we, the members of the Bar Association of the State of Kansas and the Kansas Medical Society, do adopt and recommend the following declaration of principles as standards of conduct for attorneys and physicians, in interrelated practice.

B. Cooperation Between Professions

1. It is recognized that the welfare of the physician's patient and the attorney's client requires complete cooperation between the physician and the attorney in all cases involving their combined services.

2. A physician should not advise on the amount of damages a patient should seek to recover, nor advise against the employment of an attorney. An attorney should not ask a physician to form or express an estimate of money damages in behalf of a patient. A physician, however, should be prepared to formulate and express an opinion as to the extent of disability, if any.

3. It is recognized that an attorney is the advocate of his client, and does not and cannot properly represent both sides. It is also recognized that a patient's attending physician has an obligation to furnish the patient's attorney with proper medical facts.

C. Reports and Conferences

1. There should always be one or more conferences between the physician and attorney relative to the common problems in a particular case. Arrangements for conferences should conserve the time of all parties and should be held at the mutual convenience of the physician and attorney.

2. The physician should feel obligated to point

out anything which he believes will be helpful in presenting the patient's case and any weaknesses in opposing medical theories or testimony.

3. It is the obligation of the attorney to arrange desirable conferences and to apprise the physician of the significance to the case of the particular medical testimony involved. The attorney should always invite and answer all questions of the physician concerning the evidence or its presentation, and should counsel the physician relative to cross examination.

4. A physician is entitled to the written authorization of the patient before he furnishes any attorney information concerning the history, physical condition, diagnosis or prognosis of a patient, and the attorney should furnish such written authorization in advance of a request for a conference or medical report.

5. The patient's attorney is entitled to a prompt report from the attending or treating physician concerning the medical facts, including history, treatment, diagnosis and prognosis. It is the obligation of the attorney to outline to the physician the matters he deems desirable to be covered in a medical report. A medical report shall be furnished as promptly as possible.

D. Medical Testimony

1. The physician recognizes that medical testimony is often absolutely essential.

2. The attorney should make arrangements to permit the doctor to testify at the most convenient time and without unavoidable delay in the courtroom.

3. It is recommended that a conference should always be held prior to testimony.

4. If an attorney plans to have a subpoena served on a physician he should notify him, preferably in advance, of service where circumstances permit. The physician recognizes that in many cases justice requires the service of a subpoena.

5. It is recognized that the administration of justice by the courts cannot depend upon the convenience of litigants, attorneys or witnesses, including physicians called to testify.

Therefore:

- (a) The attorney should notify the physician as far in advance as possible as to when he is to be needed to testify, and keep him notified and advised as to any changes in this respect as they arise.
- (b) The physician should arrange to appear promptly when requested and do so unless

prevented by circumstances which would constitute legal excuse.

6. The physician, while testifying should:

- (a) At all times maintain the dignity of his profession.
- (b) Answer questions as concisely and objectively as possible, using terminology, when permissible, which is understandable to a jury of laymen.
- (c) If he does not know the answer to any question, so state and make no attempt to conjecture or theorize, or give answers not responsive to questions propounded or volunteered testimony.
- (d) Under no circumstances permit any bias, prejudice, favoritism or personal interest to influence his testimony.

7. The attorney, in examining or cross-examining a physician, should:

- (a) Avoid questions which browbeat or badger the physician. The physician recognizes that it is the attorney's obligation to his client to be responsible for the trial of the case, and recognizes that cross examination is a necessary part of the process of justice.
- (b) Prepare and propound all questions to the witness in such form and manner as will permit clear understanding and a forthright answer.
- (c) Cooperate with the physician by minimizing, as far as practicable, the time required for the physician to remain in court.

8. A physician treating a patient has a definite obligation to his patient to cooperate with the patient's attorney in presenting the medical facts in court. A physician called upon to examine a non-patient has the right to decline making such an examination, but if he undertakes an examination for the purpose of reporting as an expert he may also expect to be called to testify as an expert witness.

E. Compensation for Services of Physicians

1. A physician is entitled to reasonable compensation for professional services rendered. An attorney is prohibited by the ethics for his profession from making payment to the physician for medical reports or testimony, unless he has an agreement with the client for reimbursement. Such compensation must be paid by the patient or client. The physician is prohibited by the ethics of his profession from entering into any arrangement whereby the physician's charge is determined by the amount of financial recovery.

2. Notwithstanding that the attorney cannot assume an obligation to pay the fees of a physician, the attorney should ask authority of the patient to pay the physician direct for his services out of any money recovery obtained for the patient. It should al-

so be the obligation of the attorney to cooperate with the physician in making all proper arrangements for payment for his services.

3. When a physician testifies as an expert witness his fees will be paid by the party calling him, in such amount as shall be agreed upon with the attorney representing such party.

4. Although the physician must set his own fees, it is suggested that a reasonable standard in many cases would be the equivalent of what the charge would be to a patient for the same amount of time and skill for professional services.

5. No attorney shall charge a fee to a physician for collection of an account for medical services, collected in personal injury litigation for the client-patient.

F. Joint Medical-Legal Committee

The Bar Association of the State of Kansas and the Kansas Medical Society shall each appoint six members from its profession who shall serve on a committee, two to serve for a term of one year, two for a term of two years, and two for a term of three years, and thereafter members shall be appointed for a term of three years, and said twelve individuals shall constitute the Joint Medical-Legal Committee. Such committee shall:

- (a) Promulgate such suggestions as may be necessary to carry into effect the principles hereby adopted.
- (b) Jointly attempt to mediate and arbitrate, in the first instance, any disputes arising between individual physicians and lawyers or between the two professions.
- (c) Report annually to each of said organizations the work of the committee during the year and make such recommendations to said organizations as the committee deems desirable.

G. Enactment

This code shall become effective upon its adoption by the Bar Association of the State of Kansas and the Kansas Medical Society. It shall be subject to amendment by joint action of the two professions and shall guide both professions in their interprofessional relationships in a spirit of cooperation and understanding.

Superstitions

Ancient ships displayed human skulls and animal heads on their prows to prove to the sea deity that a sacrifice had been made—and this was the ancestry of the beautifully carved figureheads on 18th and 19th Century ships!

The Kansas Medical Society—1961-1962

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